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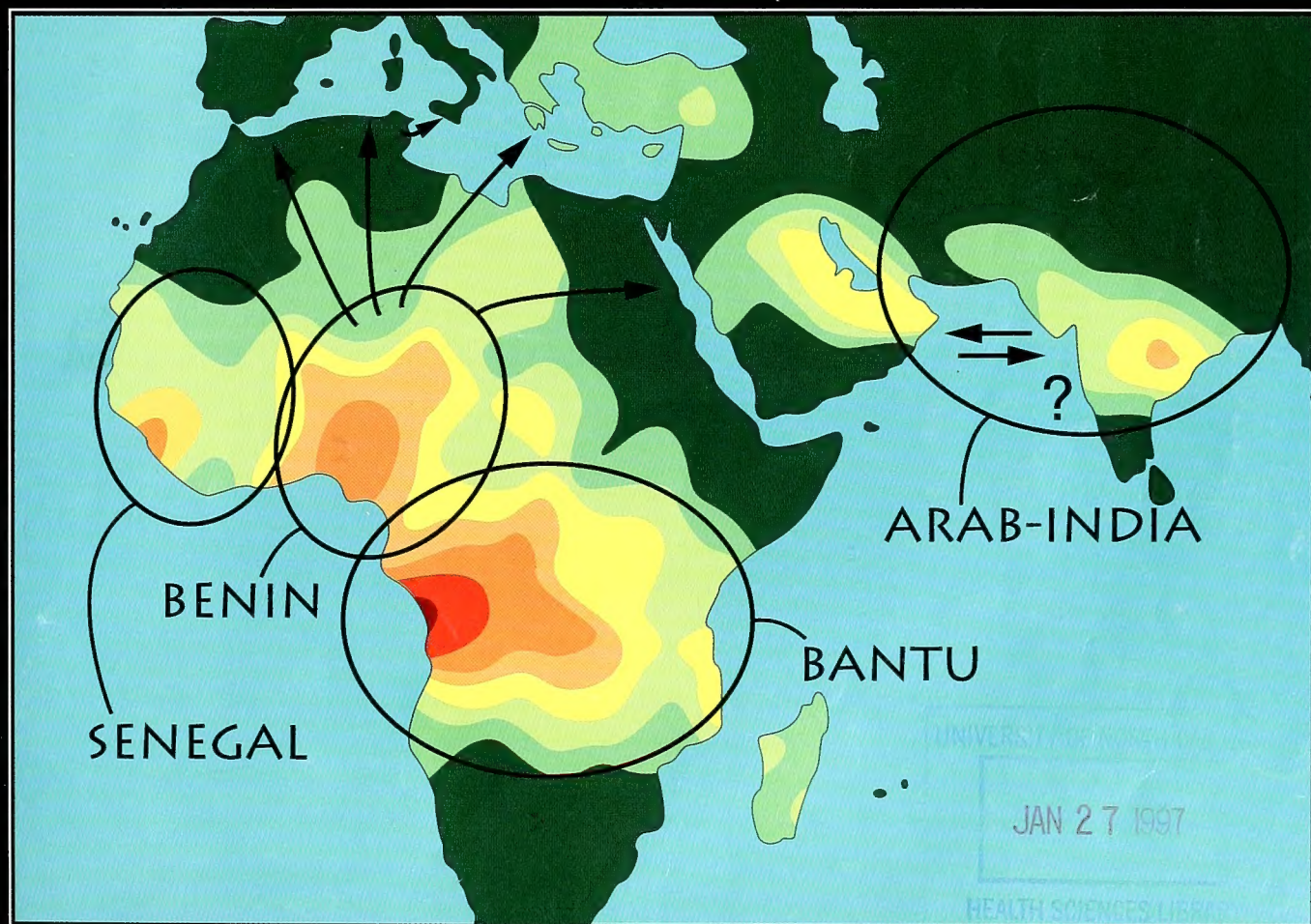
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January/  
February 1997  
Volume 58  
Number 1

# North Carolina Medical Journal

For Doctors and their Patients

## *New Views of a Debilitating Disease:*




**GEOGRAPHIC ORIGINS OF SICKLE CELL GENES**



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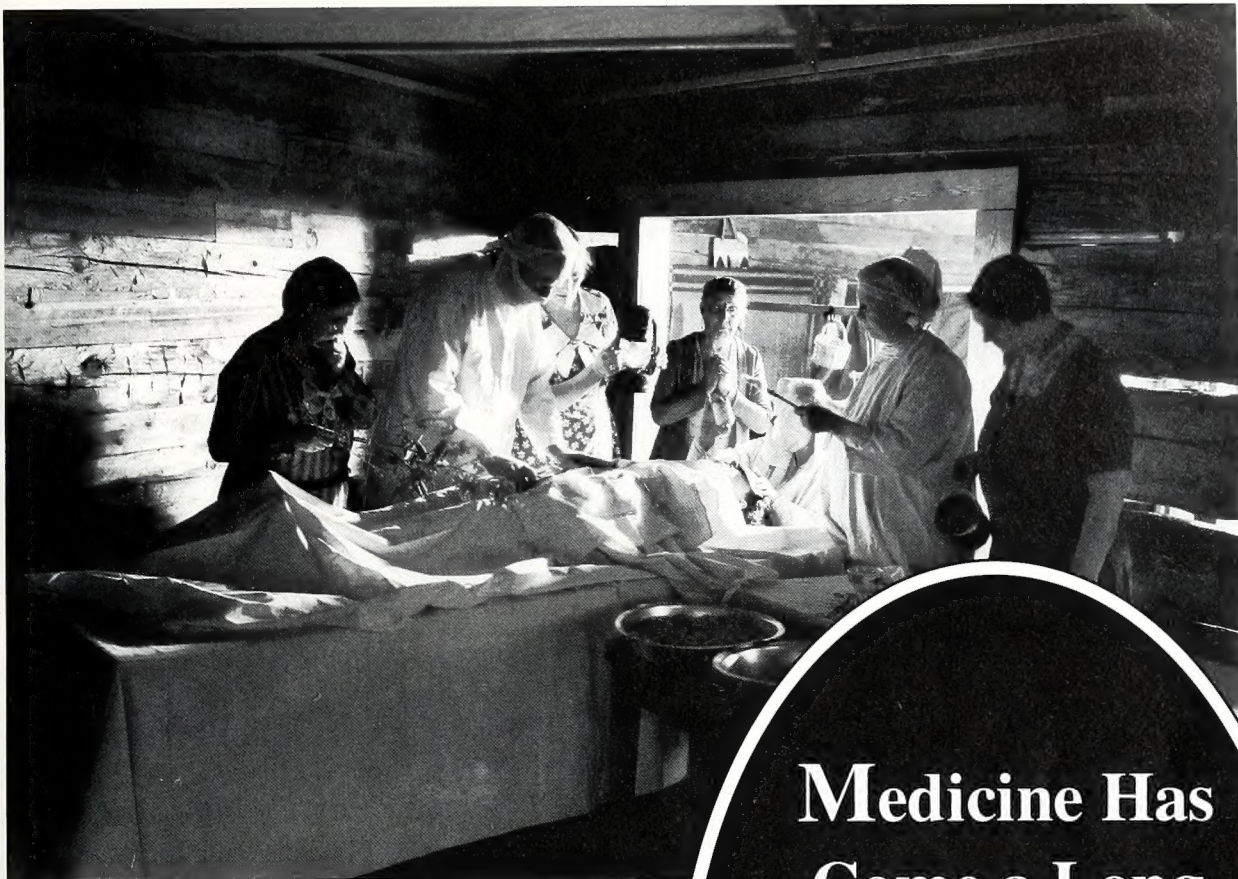
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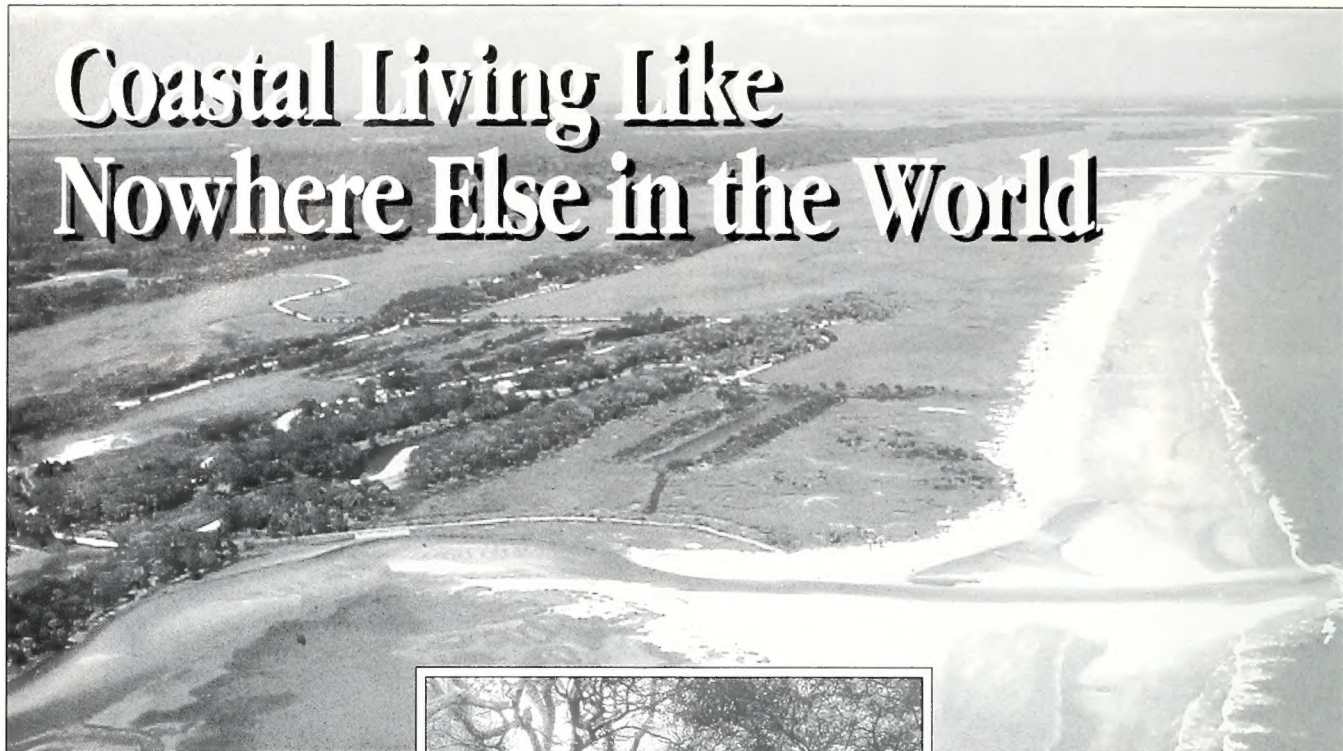
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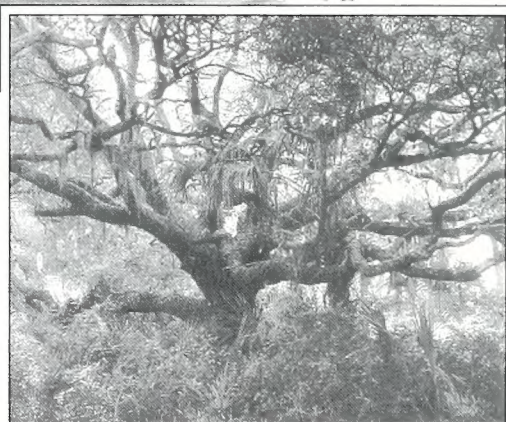




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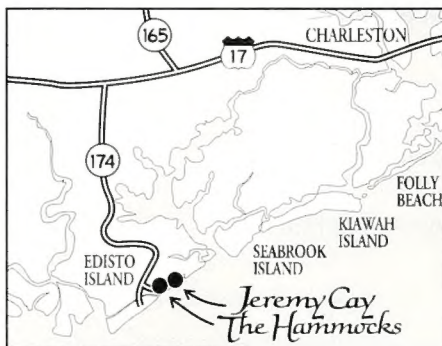


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# North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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January/February 1997, Volume 58, Number 1

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Cover: Geographic densities of sickle gene haplotypes in Africa and Asia. (Adapted and redrawn, with permission, from: Embury SH, et al. Sickle Cell Disease: Basic Principles and Clinical Practice. Raven Press, Ltd., 1996, p 355.) See article, page 62.

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## **NORTH CAROLINA MEDICAL JOURNAL**

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With this issue, we officially launch the *North Carolina Medical Journal's* home page on the World Wide Web at the address above. Our site will include:

- ◆ general information about the *Journal*,
- ◆ author's guidelines and submission information,
- ◆ a table of contents for the current issue (featuring the text of several articles),
- ◆ an up-to-date index, and
- ◆ advertising rates and specifications

Our page remains "under construction" so that we may update it to coincide with print deadlines. We encourage readers to provide us with feedback on how we can improve our website. We welcome comments by mail (Box 3910, Duke University Medical Center, Durham, NC 27710) or via e-mail: yohn0001@mc.duke.edu



# Letters to the Editor



## Doctors and Lawyers: An Uneasy Relationship

**Editor's note:** The next two letters were sent to Anne Duvoisin, the Durham attorney who wrote "Lions and Hyenas in Love: The Promise of the Medicolegal Guidelines" (NC Med J 1996;57:296-7) which appeared in the September/October *Journal*. We publish them here, with permission from Dr. Au and Dr. Demas, accompanied by Ms. Duvoisin's responses.

### To the Editor:

Ms. Duvoisin can surely answer the hypothetical questions she poses to herself in her article, "Lions and Hyenas in Love." I am a plastic surgeon who is sometimes called in to see patients in the emergency department. Afterward, I often receive an unpleasant surprise in the form of a subpoena to appear as a witness. The sheriff may even serve this on me in front of my waiting patients. Just once, it would be nice to receive some advance request from the participating lawyers to discuss the case, the fees involved, and so on. I know that lack of notification is part of the turf, but I didn't know it when I chose my professional direction in college. Had I known, I would probably still be an engineer.

I don't choose who I see in the emergency department. But I can, and do, choose whom to see in the office. The nature of our court system is adversarial. Doctors can count on being subpoenaed and savaged by one side or the other. Consequently, I no longer see or evaluate new liability patients in consultation for their attorneys. Why would anyone in their right mind willingly do that? I don't blame attorneys entirely, because without the demand, there would be no suits. It's the system, a system that lawyers don't seem to want to change. You can't blame doctors for being reluctant to be drawn into an arena full of hyenas, where we feel more like lambs than lions.

Victor K. Au, MD  
Southeastern Plastic Surgery Center, PA  
2430 S. Church St., Suite B  
Burlington, NC 27215

### Ms. Duvoisin responds:

Dr. Au is right: Medical students should learn about the legal implications of their choice of profession. A desire to be involved with the judicial system is not what motivates one to enter medical school. Nonetheless, it is a virtually certain

component of most medical careers, particularly the surgical specialties. A short course on the professional obligations of medical witnesses to their patients and to the legal system would allow students to choose specialty areas more intelligently, even whether to pursue a medical career at all.

The Medicolegal Guidelines cannot solve this missing link in the medical educational system, but they do address and can resolve the problems Dr. Au describes. Physicians who feel that attorneys have abused the subpoena power, or been unfair in terms of notice or fee payment should complain to the Joint Committee of the NC Medical Society and the NC Bar Association, or their local Bar Association's medicolegal liaison committee for dispute resolution. (Alamance, Buncombe, Durham, Forsyth, and Mecklenburg County Bar Associations have such committees.)

Most trial attorneys do accommodate physicians' schedules and honor their fees for expert services—but it only takes a few rotten apples to make the whole barrel look bad. Provisions of the Guidelines explicitly address Dr. Au's complaints:

*Subpoenas.* Part III(A) discusses subpoenas at length:

1. Under NC law, physicians are required to be subpoenaed so that an expert witness fee may be awarded to them after they have testified.
2. Attorneys should accommodate patient scheduling needs of physicians and notify them early and often of when they might be needed as witnesses.
3. Physicians must understand that the business of the courts cannot be governed by the convenience of witnesses, whom-ever they may be.

*Pretrial communication.* Part II(D) addresses pretrial discussions between attorneys and treating physicians. I was surprised to learn when first chairing a medicolegal liaison committee that many physicians were angered by the failure of attorneys to consult them about their patients, their testimony, and fee issues prior to subpoenaing them. For years I had listened to lawyers gripe (and griped myself) about physicians who would not respond to letters or calls regarding their patients/clients or who refused to meet with attorneys prior to taking the witness stand. Because of those "rotten-apple" experiences, I did not (and many attorneys still do not) know that most physicians would appreciate communication from attorneys planning to call them as witnesses. The rules vary depend-

ing on whether the lawyers subpoenaing the doctor represent the patient or not.

*The patient's lawyer.* The Guidelines encourage physicians to communicate frankly with their patients' lawyers "for the purpose of obtaining a complete understanding on the part of each as to the medical and legal issues involved. An exchange of facts and opinions in advance of such testimony minimizes confusion and time demands, encourages settlements, and enhances the understanding of the roles of the two professions."

*Other lawyers.* The Guidelines warn that doctors "should not communicate with any person without the patient's consent or a court order. Often the subpoenaing lawyer does not represent the patient and is ethically and legally prohibited from consulting with the patient's physician. Nonetheless, that lawyer is entitled to and may be obligated to depose or subpoena the treating physician in order to fulfill his or her obligations to the clients. An example would be a case where a party adverse to the patient seeks to prove that claimed injuries are bogus, exaggerated, or were not caused by their client.

#### **To the Editor:**

We have had medicolegal guidelines in Charlotte for more than 10 years, the result of planning between the medical and legal professions. I have been involved in a number of court cases, and most of them involved good relationships with the attorneys, but there have been exceptions.

I'm concerned that the guidelines sometimes seem to have no value for the physician. I have experienced this myself in a few instances. I have received a number of subpoenas, most without any preceding letter from the attorney involved. I keep these in a box, anticipating that I will probably never be called to court. Some attorneys do tell me when to expect a subpoena and whether I will be called to court. Then there are those instances in which it is clear that we will be going to court, and the attorney will want talk to me beforehand. Finally, I have, on occasion, been summoned to court at the last minute—on a case involving a patient that I may not have seen for several years—without the attorney ever having spoken to me.

I am particularly concerned with how physicians are reimbursed for time spent in court and in preparation for a case. Until recently, the guidelines in Charlotte recommended that the physician charge up to \$300 an hour for his or her time. New recommendations are now \$400 an hour. About two years ago, I was involved in a case in which the attorney had not bothered to talk to me before subpoenaing me, and my testimony was, for the most part, detrimental to his case. The judge awarded me \$50 an hour, which I protested. The guidelines state that the attorney should assist the judge in arranging adequate reimbursement. But in this case, the attorney explained frankly that if I had helped him win the case then he could have been more sympathetic in providing truly adequate reimbursement. I discussed this with the attorney in the next case that came up. I received the same blatantly unethical advice: If I expected appropriate reimbursement by the court, then I would have to

help the attorney who subpoenaed me win the case.

I would appreciate suggestions on how to deal with attorneys who take such an unethical position. When I brought the issue to our liaison committee in Charlotte, they were sympathetic, saying that perhaps the attorney should not have taken this position. But I couldn't expect anything to be done about it or to change the format of how physicians are reimbursed for their time.

Of course, I am adamantly against going to court for the attorney's sake. I am there strictly to provide an honest appraisal of the patient's condition and to assist with an understanding for the jury and involved participants. In some cases I find myself advocating strongly for the patient, primarily because of the adversarial nature of the attorney who may deny fully acknowledging the patient's significant disorder.

Fortunately, most attorneys I have dealt with in court or at depositions have been honest and forthright. And they guarantee me, at the outset, that my testimony will be reimbursed at the going rate regardless of what I might have to say as long as I am honest and competent.

Ronald C. Demas, MD

Demas Neurology and Medical Rehabilitation, PA  
2219 E. Seventh St.  
Charlotte, NC 28204

#### **Ms. Duvoisin responds:**

It is imperative that physicians and attorneys understand their respective roles in litigation. The Guidelines distinguish them:

*Fees.* Fees are generally addressed in Guideline Part IV. A fee should never be contingent on the outcome of the physician's testimony. Dr. Demas testified pursuant to subpoena and the court ordered a fee that was grossly inadequate. It was the duty of the attorneys "to assist the trial judge in determining a reasonable fee." The attorneys who called Dr. Demas as a witness ascribed their lack of vigor in performing this duty to his failure to provide favorable testimony. The conduct Dr. Demas describes is addressed by both the Rules of Professional Conduct (RPC) governing attorneys and the Medicolegal Guidelines.

*Violations of the RPC.* The NC State Bar licenses and disciplines NC attorneys. Possible disciplinary actions range from warnings to disbarment. Anyone can report a grievance to the State Bar by calling 919/828-4620. The behavior Dr. Demas mentions is addressed in RPC 7.9(B), which prohibits attorneys from paying, offering to pay, or acquiescing in the payment of compensation to witnesses contingent on the content of their testimony or the outcome of the case. RPC 7.9(C) prohibits lawyers from offering inducements to witnesses to testify falsely. The purpose of the Rule is obvious: "Witnesses should always testify truthfully and should be free from any financial inducements that might tempt them to do otherwise."

*Violations of the Guidelines.* The Joint Committee of the NC Medical Society and the NC Bar Association has a mandate



to assist attorneys and physicians who "experience problems related to a failure of adherence to these Guidelines." Complaints about possible violations of the Guidelines should be addressed to: NCBA Medicolegal Liaison Committee, P.O. Box 3688, Cary 27519, 919/677-0561. Part IV of the Guidelines disapproves conduct by a lawyer which suggests that payment of a physician's expert witness fees is wholly or partially contingent on the outcome of the matter in which medical testimony is offered.

What remedies exist for Dr. Demas for what has already happened? Complaints to the State Bar or to the Joint Committee could lead to discipline and/or resolution of the past fee dispute. What can be done to prevent future occurrences? Physicians should address with the attorney the issue of hourly rates and who will pay for their time spent, whether for depositions, consultations, or in-court testimony, before any services are rendered to any attorney.

Two rules restrict fee arrangement: Outcome-oriented fee agreements are prohibited and attorneys cannot pay their client's expert witness fees, although they can advance them. The Guidelines distinguish between treating and non-treating physician witnesses but allow each to contract for the payment of the fees. Treating physicians are limited to reasonable compensation. Non-treating physicians providing expert assistance are entitled to fees "as negotiated between the physician and the contracting parties," whether reasonable or not.

An agreement between Dr. Demas and the contracting attorney, whether he was a treating or non-treating expert, obligates the attorney to pay in accordance with the agreement even if the court orders a lesser amount. The Guidelines provide that "all fees agreed to by an attorney for the physician's assistance in legal matters should be promptly paid by the attorney in accordance with the agreement."

### Investigating NC's Medical History

#### To the Editor:

I recently received a copy of the November 1995, *North Carolina Medical Journal*, a special issue on the history of medicine in your state. The article on Confederate hospitals and Civil War medicine (NC Med J 1995;56:548-53) was especially interesting because it helped me answer a visitor's specific question, and the sources cited in the article will enable this visitor to investigate these hospitals more fully.

I hope that the *Journal* devotes future issues to North Carolina's rich medical history.

James Ogden, III, Historian  
US Department of the Interior, National Park Service  
Chickamauga and Chattanooga National Military Park  
P.O. Box 2128, Fort Oglethorpe, GA 30742

### Celebrating the "Art" of Aging

#### To the Editor:

I thoroughly enjoyed Dr. Assad Meymandi's introductory remarks in the November/December special issue devoted to aspects of elder care in North Carolina (NC Med J 1995;57:342). I was fascinated by his reference to the "art" of aging, which I am fearful that I will never develop! It would be interesting if that concept, along with "the art of loving," that is, loving others as a positive force in a life, could be developed for another issue of the *Journal*. I believe these subjects would interest a great majority of people—even doctors!

Carolyn R. Ferree, MD  
President, North Carolina Medical Society  
Professor, Department of Radiation Oncology  
Bowman Gray School of Medicine  
Medical Center Boulevard  
Winston-Salem NC 27157

### What's In a (Compound) Name?

#### To the Editor:

I enjoyed Dr. Meymandi's article, "The Art of Aging" (NC Med J 1995;57:342). I am a retired physician, age 81, and have written quite a bit myself. I give Dr. Meymandi an "A" for the effort, and I am glad that he is a member of the *Journal's* Editorial Board.

I am a stickler for keeping facts correct, and I did discover one mistake in the article. The beginning of the piece mentions Ehrlich's Salvarsan, a compound with which I am familiar. During medical school in Philadelphia from 1935-1939, I had the opportunity to give many shots of Salvarsan to the unfortunate people who came down with syphilis. Salvarsan was more commonly known as arsphenamine at that time, and we medical students composed a popular song by that name sung only in the confines of taverns.

Salvarsan was synthesized as Compound "606," not "666," as Dr. Meymandi wrote. It was the 606th compound tested and the first found to successfully kill spirochetes. Later on, Ehrlich came up with compound "914," which was even deadlier for spirochetes, but "606" was used more, since it was easier to produce. So much for "606."

Dr. Meymandi's remarks about his mother reminded me of my older brother. At 84, and a retired philosophy professor whose career spanned 50 years, he still calls me weekly from Boston to ask me what book I'm reading!

Abe L. Feuer, MD, FACS  
1006 Fairfield Drive  
Gastonia, NC 28054

*continued next page*

**Guidelines for Letters:** Letters must be typed, double-spaced, and no longer than 500 words. We reserve the right to abridge longer letters or consider them opinion pieces for potential publication elsewhere in the *Journal*. We may send original letters to *Journal* authors for appropriate response. Send letters to: *North Carolina Medical Journal*, Box 3910 DUMC, Durham, NC 27710; fax to: 919/286-9219, e-mail to: john0001@mc.duke.edu



## Taking a Stand on Pain Management

### To the Editor:

Drs. Grosshandler and Stratas did an excellent job in raising our level of awareness in their article, "Opiates for Chronic Nonmalignant Pain?" in the September/October *Journal* (NC Med J 1996;57:288-90).

During his tenure as North Carolina Medical Board (NCMB) president, Dr. Stratas asked for a "pain policy." We have made one, with the aid of our staff (especially Dale Breaden) and in consultation with experts in the field of pain management (especially David Joranson, and Drs. David Haddox, June Dahl, and Gerald Aronoff). The NCMB adopted a position statement on the "Management of Chronic Nonmalignant Pain" on September 13, 1996, after studying this issue for two years. [An abbreviated version appears at right.—Eds.] The American Academy of Pain Medicine and the American Pain Society recently developed and approved a consensus statement on "The Use of Opioids for the Treatment of Chronic Pain." Our statement borrows from that document and from the pain policies of several other state medical boards across the nation. We will consult these sources again for our educational program.

Accumulated data suggest that chronic nonmalignant pain is often undertreated or, at best, poorly treated. The use of opioids is only one facet of treatment, yet it probably ranks as the most controversial. Some of this controversy was nicely outlined in the paper by Drs. Grosshandler and Stratas and it is specifically addressed in our position statement.

Our guidelines, intentionally kept brief in the policy statement, parallel and complement those of the authors. Our intent is to foster a statewide educational program, hopefully through the state's Area Health Education Centers (AHECs), that will allow physicians to learn more about this type of pain management. To help develop and implement this program, we hope to draw on the skills of pain management specialists like Dr. Grosshandler in Chapel Hill, Dr. Spanos in Raleigh, Dr. Aronoff in Charlotte, and others. If possible, we would also like to involve the North Carolina Medical Society, the Drug Enforcement Administration, and pharmacists across our state.

The Board is aware of the risks associated with the adoption of this position statement, some of which were suggested in the *Journal* paper. We are also concerned about such risks as diversion, iatrogenic problems, and misuse or misinterpretation of the statement by some physicians. We hope to minimize those risks by educating and distributing information to physicians in North Carolina.

We feel the ultimate beneficiaries of this position statement will be the citizens of North Carolina. We call on all North Carolina physicians to help us make this a successful endeavor.

Charles E. Trado, MD, Vice President  
North Carolina Medical Board  
P.O. Box 20007, 1203 Front St.  
Raleigh, NC 27619

### A Summary of the NCMB Position Statement:

## Management of Chronic Nonmalignant Pain

Effective pain management is a low priority for our health care system. Little information on the subject is integrated in medical education and clinical practice. In addition, few practitioners are specifically trained to manage pain, and the fear of legal consequences—for physician and patient—exists when controlled substances are used.

Pain can be categorized as acute, cancer-related, and chronic nonmalignant. Our statement focuses on chronic nonmalignant pain since it is often difficult to diagnose, intractable, and undertreated. The NCMB recognizes that many strategies exist for treating this type of pain. Because such pain may have many causes and perpetuating factors, treatment varies from behavioral and rehabilitation approaches to the use of a number of medications, including opioids. Specialty groups point out that most chronic nonmalignant pain is best managed using a number of strategies simultaneously. Inadequate pain management is not uncommon, however, despite the availability of safe and effective treatments.

Some physicians avoid prescribing controlled substances, such as opioids, in treating chronic nonmalignant pain. These physicians should not abandon their reservations about using opioids in such situations. *However, the Board recognizes that opioids can be an appropriate treatment for chronic pain.*

Effective chronic pain management should consist of:

- ✓ documenting all aspects of the patient's assessment and care,
- ✓ taking a history and physical examination, including a drug and pain history,
- ✓ conducting appropriate studies,
- ✓ developing a working diagnosis and treatment plan,
- ✓ establishing a rationale for the treatment selected,
- ✓ educating patients and ensuring that they understand their physician's treatment methods and goals,
- ✓ formulating a mandatory follow-up protocol,
- ✓ assessing treatment efficacy regularly,
- ✓ consulting with specialists in pain medicine when warranted, and
- ✓ using a multidisciplinary approach, when indicated.

The Board expects physicians using controlled substances to manage chronic pain to be familiar with conditions such as: physical dependence, respiratory depression and other side effects, tolerance, addiction, and pseudo-addiction. Literature is abundant on these topics and on the effective management of pain. Physicians should regularly update their knowledge in these areas.

No physician need fear reprisals from the Board for appropriately prescribing, as described above, even large amounts of controlled substances indefinitely for chronic nonmalignant pain. Nothing in this statement should be construed as advocating the imprudent use of controlled substances.



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# Conjoint Report

## To the North Carolina Medical Society and the North Carolina Commission for Health Services

**Editor's note:** This report is an adaptation of State Health Director Dr. Ronald H. Levine's address to the North Carolina Medical Society during its Annual Meeting at Pinehurst on November 15, 1996.

I take this opportunity to present a summary of issues central to the health and well-being of the citizens of North Carolina.

### Birth Outcomes

I am extremely happy to report that, in 1995, North Carolina's infant mortality rate declined to 9.2 deaths per 1,000 live births—the lowest rate in state history, and a 26% decline from 1988. The total number of infant deaths in the state dropped below 1,000 for the first time since records have been kept. Rates for both white and nonwhite infants were the lowest in state history. These good results are a testimony to the efforts of thousands of people across our state who are working to reduce infant morbidity and mortality.

The medical community has played a key role in improving birth outcomes. Efforts to provide more accessible care are reflected in the higher percentage of women who initiated prenatal care in the first trimester of pregnancy. The percentage of women who smoke during pregnancy fell, suggesting that the effort of providers to promote healthy behaviors is making a difference. More widespread use of effective treatments, such as corticosteroids and surfactant, improved the survival of severely preterm infants.

Although the trends are most encouraging, we must not lose sight of the fact that North Carolina's infant mortality rate is still well above the national average, and the rate for minority infants is twice as high as that of white infants. The rates of low and very low birth weights continue to be unacceptably high, particularly among minorities, indicating our relatively minor successes in coping with the fundamental problem of preterm birth. Much more to do here.

### Child and Adolescent Health

Again on the positive side, our child fatality rate dropped to 89 deaths per 100,000 children, a 9% reduction from the previous year, and a 26% reduction since 1988. The number of deaths declined in all age categories except 16- to 17-year-olds, where motor vehicle-related deaths continue to rise. I am encouraged that local child fatality prevention teams are now active in each county. These teams review the deaths of resident children and seek to develop ways to prevent further such deaths. I encourage physicians to participate on the teams in their communities.

We are working hard to help adolescents gain access to preventive health care services through the development and use of school-based and school-linked adolescent health centers. I am pleased to report that a network of more than 30 such centers is now in place. We recently received grants from the Robert Wood Johnson Foundation and the Duke Endowment to enhance and expand this initiative. Both foundations based their awards in part on the support of these centers by practicing physicians, and for this we are extremely grateful.

One effort that I am quite excited about is the "Healthy Child Care" campaign—a collaborative effort of our Department, the Department of Human Resources and the North Carolina Pediatric Society aimed at enhancing linkages between health care providers and child day care providers to assure healthier and safer child care environments. Campaign components include the recruitment of physicians to act as consultants to child care centers; the development of programs to educate both physicians and child care operators about health and safety issues; the initiation of a hotline to respond to providers' questions; and a host of awareness activities to encourage both child care providers and parents to model preventive health behaviors for children.

### The Rabies Epidemic

I am sorry to report that 58 of our 100 counties have now been visited by the current rabies epidemic. The number of animal

cases has more than doubled each year since 1990. Wild animals account for the vast majority of cases, but rabies has occurred in cats, dogs, horses, and cattle. We even had a rabid rabbit in Harnett County, a very rare event.

Our staff is engaged in multiple educational efforts about rabies, including education for medical professionals through the AHEC system. Consultants are available in the Department to respond to questions; we have produced a booklet titled "Management of Animal Bites." Call 919/733-3410 during working hours or 733-3419 after hours, on holidays or weekends, for consultation or to request a copy of the booklet.

## AIDS and HIV in North Carolina

More than 6,700 people have developed the acquired immunodeficiency syndrome (AIDS) in North Carolina since 1983, when the disease was made reportable in our state. Since 1989, and every year thereafter, more AIDS cases have been reported among African Americans than among whites. The cumulative total of AIDS cases reported through the end of September, 1996, shows that 61% are African American, 2% are Hispanic, and 1% are American Indian.

Dealing with Human Immunodeficiency Virus (HIV) infection of pregnant women and interruption of transmission of the virus to their babies is an area where the health care system must be more proactive. The most recent *Survey of Childbearing Women* indicates that, in 1994, three of every 2,000 women who gave birth in North Carolina was HIV-positive; among African-American women, the figure was 10 of every 2,000. In some counties the prevalence of HIV exceeded one per hundred African-American women giving birth. This distressing knowledge, in combination with the demonstrated success of zidovudine (AZT) treatment in reducing transmission of HIV from mother to fetus, prompted our Health Commission to pass a rule requiring HIV counseling, and strongly encouraging HIV testing as a part of routine prenatal care for *all* women. This is an area where the medical community can tremendously help the state's prevention efforts.

## The State of the Public Health System

I close by sharing several concerns regarding the continued vitality of your public health system. I consider the system to be facing very substantial challenges, including the following:

1. Our much-beloved North Carolina tradition of home rule and local autonomy has led to an unacceptably great range of scope and quality of public health programs and services. Recognizing that the state has no authority to compel our smallest counties to join together in multicounty districts (although that arrangement has proven to be highly effective), county commissioners all too often maintain very small health departments. These depend on a small tax base, pay low salaries, face overwhelming problems in recruiting and retain-

ing qualified staff, and are often unable to attract key health professionals such as nutritionists, health educators, and environmental health specialists. Rather than supporting the obvious answer to this dilemma (grouping counties together into fewer but vastly stronger administrative units) local elected officials instead opt to combine weak county health programs with weak county welfare programs, a recipe sure to produce weak so-called "human service" programs, the abolition of professional oversight Boards, and the transfer of critical, often sensitive health decisions away from public health professionals into the hands of county managers.

2. Our seriously fragmented state health structure tends to separate the state public health agency from its natural partners (Medicaid, Rural Health, Health Facility Licensure, HMO regulation, and so on). As a result it cannot bring to bear upon state health policy-making its expertise in disease prevention or its ability to advocate the use of health outcomes and health status as critical elements of health system reform.

3. Many of us have envisioned a system that provides universal access to high quality, cost-effective health care—with hands-on clinical care being provided mainly by the private sector. This would allow public health professionals to concentrate on their core mission of prevention and health promotion through communicable disease control, environmental health, community health assessment, and community health education activities. Alas, that vision has dimmed, if not vanished, leaving ever larger numbers of uninsured and underinsured citizens who look to the emergency room and the local health department (considered by many to be the residual guarantor of care) as their only options for health care services.

Does the public health system have the resources to serve those who have no funds and no third-party payor? Can they cost-shift as they have in the past, using a portion of their Medicaid receipts to cover such care (as well as a sizeable portion of their population-based services)? No, not at all! Because Medicaid patients are being redirected into managed care plans, depriving local health departments of a key source of financial support. Still unresolved are questions about how well patients like difficult-to-serve Medicaid moms and their babies will fare in the traditional HMO.

All is not gloom and doom, however. We have several examples (including Cleveland and Buncombe counties) of instances in which practicing physicians, hospitals, and a strong local health department have come together to develop an integrated system of care, each partner doing what it does best and each respecting the contributions of the others. I believe this cooperative approach is the best answer to the questions of quality, access, cost, and health status. It returns to health professionals themselves the responsibility to design, implement and evaluate the health care system of the 21st century.

The doctors of North Carolina can help us today, as they have in the past, to preserve and strengthen our public health system at both state and local levels. This will allow us to continue to be a reliable, credible, *respected* partner as together we tackle the daunting health care challenges ahead. □



# Instructions for Authors

The *North Carolina Medical Journal* is a medium for communication with and by members of the medical community of this state. The *Journal* publishes six times a year: in January, March, May, July, September, and November.

The *Journal* will consider for publication articles relating to and illuminating medical science, practice, and history; editorials and opinion pieces; letters; personal accounts; poetry and whimsical musings; and photographs and drawings. Papers that relate to the present, past, or future practice of the health professions in North Carolina are especially pertinent, but manuscripts reflecting other perspectives or topics are welcomed. Prospective authors should feel free to discuss potential articles with the editors.

## Manuscript Preparation

Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report

measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS- or Macintosh-compatible format. Also enclose three hard copies of the text for review purposes. Double space text with one-inch margins. *Please do not "format" the text* (e.g. no variations in type size, no bold face, no italics, no embedded endnotes).

Submit illustrations, in duplicate, in the form of high-quality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5-by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. *Do not write directly on the backs of prints.* This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

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Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (preferably no more than 15), retaining those that document important points. The "Uniform Requirements" cited above contain reference format. We customarily list the first three authors for "et al"-type references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

### Manuscript Review and Editing

A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. *Authors' cover letters must include a line that states that their submitted manuscripts are not under consideration for publication elsewhere.* Decisions to publish or not are made by the editors, advised by the peer reviewers.

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# Medicine As a Mission

Dan G. Blazer, MD, PhD

**Editor's note:** Dr. Blazer delivered this address to graduating medical students at the Hippocratic Oath Ceremony, Duke University School of Medicine, May 10, 1996.

*"Give no drugs and perform no operation for a criminal purpose"*

In a few moments each of you will repeat this phrase modified from the Hippocratic Oath. I suggest that these words have taken on a very different meaning in 1996 than they had 2,500 years ago. The literal translation reads "I will give no deadly medicine to any one if asked, nor suggest any such counsel; in like manner, I will not give to a woman a pessary to produce an abortion."<sup>1</sup> We have changed the words to make them relevant to 20th-century medicine, but I do not believe we have changed the intention of Hippocrates (or the Hippocratic physicians). These ancient physicians were, I believe, less concerned with the ethics of a particular medical procedure than with the potential to abuse power which resides in the role of the physician. Other portions of the Hippocratic writings recognize this authority and power:

*Life is short, and art is long; the crises fleeting; experience perilous, and decision difficult. The physician must not only be prepared to do what is right himself, but also to make the patient, the attendants and externals cooperate.*<sup>2</sup>

Hippocratic physicians had significant authority and responsibility over all the persons involved in the healing arts. I find it especially interesting that the Hippocratic physicians believed the physician must "be prepared" to make "the patient do right" and "the externals cooperate." In another place, however, we read:

*Medicine is of all the arts the most noble; but, only to the ignorance of those who practice it...it is at present far behind all the other arts. Their mistake appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medi-*

*cine (and with it alone) except disgrace, and that does not hurt those who are familiar with it.*<sup>3</sup>

During Hippocrates' time, there was little control over the practice of medicine. Two major forces influenced health care during this period—the profession of medicine (that is doctors) and religion. But Greek religion was in turmoil with the emergence of secular philosophy, and the shrines were losing their influence. Therefore secular medicine was the dominant force. Hippocrates did not want that dominance destroyed. He believed in the value of medical science unencumbered by religious superstitions. Yet he feared that, if physicians gained too much power, they would neglect the responsibilities that accompany the healing arts. A concern for the proper use of power in the practice of medicine pervades the Hippocratic writings.

The power of physicians has waxed and waned since the era of ancient Greece, but during the 19th century physicians again became the dominant force in health care. Hospitals were places where persons were taken "to die"; most health care was provided by doctors in the homes of patients. Doctors were reimbursed directly by patients for the service.

During the 20th century, two new forces began to exert a major influence on health care: hospitals and health care insurers. As we near the end of the century they have become the dominant players in the delivery of health care in this country. Indeed, it is sometimes difficult now to distinguish hospitals from insurance companies. For example, Columbia-HCA (a company that originally managed hospitals) is negotiating the purchase of Blue Cross/Blue Shield of Ohio. Insurance companies have evolved into managed care companies and health maintenance organizations (like Kaiser Permanente) that buy hospitals. What has happened to physicians while these changes have been occurring?

Physicians, as a voice in health care, have faded to the

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background. Does this mean that the changes in our health care system are necessarily bad? Do physicians necessarily need to be "in control"? Few of us would say yes. Yet most physicians, perhaps for the first time in history, are trying to find their role in the delivery of health care. Why are we undergoing this identity crisis?

Not because of advances in technology. Physicians today have more tools available to them (and to them alone) than at any time in history. As a psychiatrist, I can do more today to treat psychiatric disorders than ever before in the history of humankind. The findings of molecular genetics have put us on the verge of truly remarkable therapeutic breakthroughs. Major new discoveries are reported weekly.

Not because physicians are not as bright, independent, or energetic as they were in the past. It is almost trite to say that medicine attracts the best and the brightest. One would search far and wide (and unsuccessfully) to find a profession with more talent, energy, and integrity than medicine. Knowing my colleagues and knowing our students, I believe that the young generation is just as independent, perhaps more so, than my own was when I entered the profession.

Not because external factors render physicians impotent. I hear much talk about "the system," but there have been systems throughout history. Systems are shaped by people with ingenious ideas and the energy and will to see those ideas through to reality. Only passive people are shaped by "the system."

Not because patients take responsibility for their own health. Persons, especially in modern Western society, are more informed today about their health than in the past. And they are taking increased responsibility for their health. Nevertheless, the gap between what doctors know and what the woman or man in the street knows is widening, not narrowing. Patients need guidance and consultation from their physicians more today than perhaps at any time in the past. Despite recommendations for self-examination for breast and skin cancer, despite blood pressure monitors in grocery stores, despite a plethora of dietary supplements and potent drugs now available in nonprescription form, the doctor is more essential to health care today than at any time in history.

In my opinion, the problems we confront at the end of the 20th century lie in the attitudes of physicians themselves. Hippocrates was concerned about the abuse of power by the physician; I am concerned with the impotence and passivity of the medical profession. We have become complacent.

Eugene Stead, the doctor's doctor of Duke University Medical Center said years ago, "What this patient needs is a doctor."<sup>4</sup> I believe what this society needs is for doctors to stand up and be doctors! Doctors must recognize their ability to influence—their power, if you will. They must use that influence and power constructively to shape rather than be shaped by the forces that dominate health care today. Don't mistake me. When I say that physicians must be motivated to shape the system, I do not mean that they must be motivated to break the system. Medicine has changed. It will never be the same. The new health care system is a reality that will not disappear,

although it will evolve. But we, physicians, can force managed care organizations to deliver optimal health care for our patients.

How can you and I do this? How can we make certain that we, to rephrase the Hippocratic statement, "Assure that we can give those drugs and perform those operations which benefit our patients"? Let me suggest two related attitudes which will ensure that we have our say in the arena of health care for the benefit of our patients:

1) We must view ourselves not only as professionals, but as missionaries. I worked as a medical missionary in Africa for two years and I can tell you that the attitude of a missionary is more focused than that of a professional. Missionaries, after all, have a mission, a role underlined by a sense of moral obligation. Now, I do believe that we have moral obligations when we practice medicine. This has not been better stated than in the "Patient-Physician Covenant" published in the *Journal of American Medical Association*:

*Medicine is, at its center, a moral enterprise grounded in a covenant of trust....[Physicians] are both intellectually and morally obliged to act as advocates for the sick wherever their welfare is threatened and for their health at all times....These traits mark physicians as members of a moral community dedicated to something other than its own self-interest....Only by caring and advocating for the patient can the integrity of our profession be affirmed. Thus we honor our covenant of trust with patients.*<sup>5</sup>

2) We physicians must take risks. The book, *Becoming Doctors*, includes an essay by Ernest Castro Lee of the University of Texas (Class of 1994) titled, "I'll Light a Candle Before I Curse the Dark." In it he discusses his experience while a medical student visiting his native homeland, the Philippines. "It was there where I rediscovered my dreams of 'saving the world,' or at least, 'saving my Philippines.'" Mr. Lee saw hunger, poverty, and desperation as he visited medical missionary sites. He responded,

*It is my vision to return to my homeland on medical missions every summer to perform free surgery for the poor. I plan to move there permanently and to help offset the 'brain drain' by teaching all that I have learned in the United States to high school, college, and medical students....Many who hear of my plans discourage me, telling me I am too idealistic. This only serves to strengthen my resolve to return home. But the majority of people feel that the situation in the Philippines is hopeless and thus do nothing to help the Filipinos, all the more reason for the few who are still able to dream for a better Philippines to return and inspire the hopeless. If only one innocent child is spared a terrible disease by my medical practice or teachings, then my goal to make a difference in my homeland will be accomplished.*<sup>6</sup>

I, a middle-aged academic physician, find this statement a bit idealistic, perhaps even naive. But I hope Dr. Lee proves me



wrong. We need people in our profession who strongly believe in their mission, who dare to dream to the point that they defy odds, they take risks. Many will fail, perhaps return discouraged, but some will succeed.

In the aftermath of the Korean War where he had served as a Navy doctor, Tom Dooley, MD, returned often to Southeast Asia. For most of his short life (he died at age 34) he served the needs of that impoverished, war-torn area. He wrote three books during the 1950s about his experiences, including *Deliver Us From Evil*.<sup>7</sup> Dr. Dooley's books not only encouraged me to be a doctor, they encouraged me to be a medical missionary. Dr. Dooley's favorite poem was "Stopping By Woods on a Snowy Evening" by Robert Frost. The final verse reads:

*The woods are lovely, dark and deep  
But I have promises to keep  
And miles to go before I sleep  
And miles to go before I sleep.*

I no longer serve as a medical missionary in Africa, but I view my role as a doctor today as much a mission as I did then. I hope you will do the same. Because of your talent, your education, and your choice of profession, you have promises to keep. As you take the Oath, I ask that you not only celebrate your entrance into the profession of medicine, but recognize your power and your responsibility. I also ask that, at some level and in some way, each of you take upon yourself a mission. Medicine, frankly, is just more fun when you have a mission. □

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# Patient-Centered Care

## A Collaborative Approach

Howard J. Eisenson, MD

**Editor's note:** This paper was presented in March 1995, at the Randolph County Public Library in Asheboro, as one of the Jared Haft Goldstein Memorial Lectures. Dr. Goldstein, a family physician and founder of the Randleman Family Health Center, died in 1991 after a brief illness. He was 39.

Dr. Goldstein was a dedicated physician who cared deeply about his patients and his community. His academic interests were broad, and he published several papers on the importance of a human connection between doctor and patient. Family and friends established the Goldstein Lectures to further the exploration of the role of humanities in medicine. The Lectures fund is administered by Duke's Department of Community and Family Medicine.

In this talk I will describe the challenges of providing comprehensive medical care which attends to the "whole patient"—to that individual whose health and well-being are determined by so much more than biological processes—by social, emotional, psychological, spiritual, and family factors that inform who all of us are, how illness affects us, and how we respond to treatment. I will refer to this as patient-centered care. Second, I will discuss a model for collaboration between mental health practitioners and medical practitioners, designed to enhance our ability to provide patient-centered care, especially for our most challenging cases. I will illustrate this collaborative approach with a case from my own practice.

### Why Patient-Centered Care?

Even those who have practiced medicine for only a short time know that medication prescriptions or surgical interventions are often insufficient to achieve improved well-being for our patients. Indeed for many of them, especially those with chronic or incurable conditions and conditions with underlying psychological, social, and emotional causes, the key to feeling better and functioning better, seems to reside in changed perceptions, attitudes, or behaviors.

Through the years, many of the most esteemed medical practitioners and teachers have advised that to accomplish the

best results, with the most patients, it is important that we understand and attend to the "whole patient." Dr. Francis Peabody is often quoted for his observation that "one of the essential qualities of the clinician is interest in humanity, for the secret of the care of the patient is in caring for the patient."<sup>1</sup> The man we have gathered to honor, Dr. Jared Goldstein, knew well the importance of connecting with his patients on a human level. He and others have written eloquently about the successes possible when physicians move beyond a strictly biomedical model for explaining and treating illness.<sup>2</sup>

Patients too have told us how important it is to them for their physicians to learn about them as people, and having understood better who they are, to care for them, to respect them, and to treat them as partners in the search for better health. Norman Cousins, drawing on his own experiences as a patient, tells us that "the patient-physician relationship is a powerful, sometimes mysterious, frequently healing interaction between human beings...at the core of this interaction is communication...the right words can potentiate a patient, mobilize the will to live, and set the stage for heroic response. The wrong words can produce despair and defeat or impair the usefulness of whatever treatment is prescribed."<sup>3</sup> Research on patient satisfaction demonstrates the importance to patients of a physician who will take the time to listen to them, to elicit their concerns in a friendly, empathic, and nonjudgmental fashion, and who will try to get to know them as people.<sup>4</sup>

Despite these awarenesses and attitudes on the part of patient and physician alike, all too often there is insufficient attention to the whole patient in modern medical practice. Commonly physicians know relatively little about their pa-

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tients—who they live with; what their upbringing was like; how they function on a day-to-day basis; what have been the joys and sorrows in their lives; what are their hopes, their dreams, their fears; how do they handle pain or suffering. Too often we physicians behave as if our only task is to make or to exclude a “biomedical” diagnosis, to select the appropriate drug, or to recommend the appropriate surgery. Often we overlook important psychiatric diagnoses or evidence of such dysfunction as substance abuse or family violence.<sup>5,6</sup>

Of course there are many physicians who attempt to provide patient-centered care. However, it is important to recognize that, unfortunately, there are many obstacles to practicing medicine this way.

## Challenges to Patient-Centered Care

Medical training is based primarily on the biomedical model. Courses in anatomy, microbiology, biochemistry, and pathology are accorded much more curricular time than doctor-patient communication, or medical ethics. This priority is important. Modern medicine has made extraordinary strides thanks to advances in our understanding of medical science. It is necessary and appropriate that the scientific bases of medicine should be given major emphasis in medical school curricula. But we have also learned a lot about the importance of a humanistic approach to medical care, about the relevance of a “biopsychosocial” model of health and illness.<sup>7</sup> Yet relatively little curricular time is devoted to teaching this. Regardless of the time allocated, students soon learn that much more emphasis is placed on their mastery of the “hard” sciences than of the “soft” ones. Some students find this emphasis on scientific medicine over humanistic medicine to be demoralizing. They become confused as many of the instincts that led them to a career in medicine, many of the instincts that lead them to try to “connect” with patients on a “human” level, they are taught to see as inefficient, or counterproductive to the important work of making a biomedical diagnosis and implementing an efficient treatment plan. This confusion is resolved by many students losing some of their idealism and modifying their style of interaction. Some leave the profession or select areas of specialization where patient contact is minimal. Fortunately, some find the strength to endure an uncomfortable experience yet come out on the other end with their caring intact.

With the rigors of medical school and residency training behind us, we still find it difficult to practice patient-centered medicine. Medical practice is typically organized so that as many patients as possible are seen as quickly as possible. The doctor’s time is expensive and, accordingly, is allocated sparingly. Support personnel are used to reduce unnecessary contact between doctor and patient. The doctor uses several exam rooms at a time, so he or she can move quickly from one to the other while patients are dressing or undressing. Schedules are kept full, and usually “overbooked” so that no gaps are created by the occurrence of “no-shows.” Typically, there is little if any

time built in for handling phone calls—from patients, or from other caregivers—so interruptions are frequent. The atmosphere is busy and often hectic. This doesn’t seem to be getting better with time.

Limited patient contact time is only one of the obstacles to physicians getting to know their patients. Fewer and fewer physicians today are in solo or small group practices. Most are in ever larger group settings.<sup>8</sup> In these settings, and especially with the impetus to keep schedules full, it is difficult for patients to consistently see the same doctor. Doctors may be less invested in getting to know their patients well because contact will be inconsistent. In addition, ours is an increasingly mobile society. Not only do patients change doctors because they (or the doctor) are moving, but many patients, even long established ones, leave their doctors because of changes in their health insurance options. In managed care settings where medical care providers are paid in advance (capitated) for each patient on the plan, incentives exist to keep each patient’s utilization of care low, i.e. not only to keep visits brief, but to keep patients out of the office as much as possible.

In addition to demographic and practice organization factors, physician attitudes tend to interfere with doctors knowing their patients well and attending to their psychosocial as well as physiological needs. Many physicians feel that they lack the time “to open Pandora’s box” and explore their patients’ psychosocial concerns. Often they feel that they lack the training to address the issues that may surface.<sup>9</sup> Additionally, physicians may be uncomfortable dealing not only with their patients’ emotions but also with their own, around personal and distressing issues. Probably some physicians avoid exploration of their patients’ psychosocial concerns because of worries about “boundaries” issues; about becoming too involved with their patients or of promoting in their patients a dependency on them.

Many physicians may feel that while a patient-centered approach to care has theoretical importance, in practice its benefits are elusive. Although they understand the importance of not missing a biomedical diagnosis, it seems generally to be acceptable to fail to recognize, or to be imprecise about a psychosocial diagnosis. Often physicians (and even patients!) seem to have the attitude that suffering as a consequence of physical illness is more legitimate than suffering as a result of psychosocial factors.

Some primary care physicians feel that exploration of their patients’ psychosocial concerns is not their responsibility, and is better left to mental health experts, yet many do acknowledge the importance of attending to these concerns, at least on a basic level. These physicians will attempt to learn about their patient’s social “context” by asking routine questions about family and work environments. However, even physicians sympathetic to this view may not practice what they preach. In a small study last year in our own residency program’s family practice center we learned that of 100 new patients presenting for a complete health assessment, only a small fraction had even basic data collected by the physician regarding the patients’ family-marital status, whether they had any children, who lived in the



household, etc. Other studies have demonstrated that even when family context is addressed, it is usually in terms of inquiry about the medical history of family members; seldom is there discussion about the opinions, expectations, or feelings of family members.<sup>10</sup>

Patient attitudes also play a role in determining the extent of physician attention to their psychosocial concerns. Many patients are reluctant to hear that there may be an emotional or psychological component to their difficulties. Even when they acknowledge significant psychological trauma, as with victims of sexual abuse, they may resist discussing this. Commonly patients will not accept referrals for mental health services.

There are many potential adverse consequences when doctors are unwilling or unable to explore psychosocial issues with their patients. Important diagnoses may be missed. This often results in inappropriate treatment, often with multiple medications that fail to alleviate the patient's suffering. Similarly, when diagnosis proves difficult physicians may obtain multiple laboratory and radiologic studies unnecessarily. These carry the burden of unnecessary costs and discomfort, and sometimes yield abnormal but irrelevant findings which themselves generate more unnecessary studies. Difficult-to-diagnose or difficult-to-treat patients may also be subjected to unnecessary referrals. Doctors suffer too when diagnosis is elusive and treatment unsuccessful. They may be subject to "burnout" when they struggle with too many such patients.

## **Collaboration as a Means to Providing Patient-Centered Care**

Given the difficulties in attending to patients' psychosocial needs, it is not surprising that caregivers are looking for new approaches. One such approach is "collaborative care," which has been described as a team effort between "biologically oriented" and "psychosocially oriented" professionals.<sup>11</sup> This model accords equal importance to the mind and the body—the psychological and the biological—in diagnosis and treatment. In addition, it emphasizes consideration of the patient's social milieu, especially the family, in gaining an accurate understanding of problems and in designing a treatment strategy that makes the best use of available resources. The model facilitates integration, on behalf of the patient, of the different, but complementary expertise and perspectives of the "biologically" and "psychosocially" oriented caregivers. Perhaps the best way to illustrate some of the advantages of this model is to describe a case from my own practice.

For several years I had been seeing a patient I will call Mrs. G, a 57-year-old married woman whom I found increasingly frustrating to deal with. She suffered from a variety of chronic pains and also from illnesses including severe ulcer disease and chronic bronchitis. Our frequent visits always followed the same pattern. She would complain of a variety of symptoms for which I could find no clear cause, and the visits would invariably end with a prescription for pain medication. I came to dread

her visits as my inability to "make her better" or even to explain adequately what was causing her pain made me feel like a failure. Worse, I resented the fact that I felt like I had no recourse but to prescribe narcotic pain medication, and wondered if I were being manipulated. After a couple of years of this, thinking that there must be a better way, I asked a therapist colleague, Joe Kertesz, to see Mrs. G with me.

I continued to have my regular "clinic" visits with Mrs. G, but in addition, Joe and I would meet with her together, for approximately 45 minutes every three or four weeks. Initially, most of the time was devoted to learning more about her as a person. With encouragement, she talked with us about her childhood. We learned that she was the second oldest child in a rural farm family of five children, and that her father was an alcoholic who was frequently abusive when he was drinking. We learned that her mother died when Mrs. G was in her early teens, and that she took on parenting responsibilities for her younger siblings. She married while still a teenager. During the early years of her marriage she and her husband both began drinking heavily. Her husband was frequently on the road with his work, but when home was often drunk and sometimes abusive. Though they lived in a small apartment, the G's continued to care for her two youngest brothers until they were old enough to leave home.

As this story unfolded over several visits, Mrs. G became a much more "real" person to me. I began to see her as a complex individual with admirable strength to have survived a difficult life, much of which was devoted to caring for others. It helped too that she so appreciated these sessions. Though she often cried in talking about her past, she said repeatedly that she appreciated this opportunity, and confided that she was telling us things that she had never felt she could talk about before. It became easier and much more satisfying to see Mrs. G as I developed an appreciation for her and as she seemed at last to be deriving benefit from our visits. I wish I could report that her physical complaints lessened; some of them actually did, though she continued to have problems with chronic pain. The main difference was that she and I were both coping better with the pain.

It was very important to have Joe there for these sessions, especially in the beginning. I still chuckle to recall how difficult it was for me to sit quietly and just let Mrs. G talk. I'd become particularly uncomfortable when she paused. I suspect that for many physicians, silences feel like an unacceptable waste of time. After five to 10 seconds of silence I'd be squirming in my chair, eager to ask another question or to make a remark. Joe taught me by example to sit quietly, to tolerate my patient's emotions, and her silences. He taught me to listen carefully to what she was saying, rather than to think so much about what I was going to say next. These are normal operating modes for the skilled mental health practitioner, but for me, a family doctor with 13 years of experience, it was unfamiliar stuff. But gradually I got better at it. As time went on, I did most of the interviewing, and conducted occasional counseling sessions on my own.

It was also very helpful to have a trusted colleague giving me feedback on my work. He helped me to accept that I could not bear responsibility for understanding and solving all my patient's problems. Even when understanding and solutions were not possible, he helped me to feel good about the empathy and support I could provide, and which seemed to be such a comfort to my patient.

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“...when understanding and solutions were not possible, (my colleague) helped me to feel good about the empathy and support I could provide, and which seemed to be such a comfort to my patient.”

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After several sessions, Joe suggested that we include Mrs. G's husband. I had seen him several times in the waiting room, and had spoken to him briefly once or twice when he picked up a prescription for his wife. But meeting him, and seeing the two of them together challenged my preconceptions. At one time a heavy drinker who was occasionally abusive, he was for many years now abstinent of alcohol. He had become a religious man, and was in fact a lay minister. His manner with his wife was warm and caring, and they often related with a gentle teasing humor.

As time went on, Mrs. G's ulcer disease became more serious, and she underwent a series of surgeries, followed by complications, which left her weakened, malnourished, and unable to work. This created strains on the couple's relationship. Joe helped me to recognize a recurring problem in their interactions, whereby Mr. G would try to encourage his wife to get out of the bed and busy herself with chores to take her mind off her worries and symptoms. His “cheerleading” approach to her feeling bad seemed to worsen his wife's symptoms, and to cause her to withdraw further. Over several sessions, we were able to help the couple see this recurring dysfunctional pattern and to suggest a different approach for both of them. We helped Mr. G to understand that while well-intentioned, his encouragements felt like criticism and a lack of empathy to his wife, which worsened her feelings of distress. We helped her to understand that her husband was trying to be helpful, but that he needed her to tell him how best to be of comfort to her. The couple accepted these and similar observations, and gradually improved their communication skills and the strengths of their relationship.

At a later point in our work together questions arose about the severity and prognosis of Mrs. G's medical problems. While she remained weakened, malnourished despite a feeding tube, and in considerable pain, her diagnosis was unclear. For a time my specialist consultants had felt it likely that she had a cancer of the gastrointestinal tract. Later, this diagnosis seemed less likely, but I was advised that her condition was nonetheless serious enough that “she might as well have cancer.” Though

Mrs. G was starting to show more interest in understanding the details of her illness, and what she could expect in the future, I was unsure about how much to reveal. I was afraid to frighten her or to rob both of them of their hope. Joe reminded me to listen to the patient, and to trust her resources for taking care of herself. It was not my responsibility to “protect” her from the burden of what I knew, especially when she was asking for more information. Though it was Mr. G's coping style to “think positively” and to put his trust in God, he needed help to accept that his wife's wish was to understand, as best she could, what dangers the future held. I was surprised to see how well she took the grim news about her prognosis, and how supportive her husband was able to be even in accompanying her to the funeral home to pick out her own casket. Those things done, we were able to return to the themes of how to live as well as possible in the face of life-threatening illness. Mrs. G was then better able to accept some of our self-care instructions such as avoiding all aspirin-containing products.

It is still humbling to me today, more than two years after I started this collaborative work, to realize how much more help I have been able to give this couple by virtue of seeing them with my partner. Had I continued to work alone, I would almost certainly not have developed with Mrs. G the kind of bond we now have. I probably would have never recognized the importance of her husband or had the opportunity to coach them as a couple in ways to be more mutually supportive. I could have continued to be mired in worry and frustration that I was unsure of my patient's diagnosis, and to feel alone with my struggles over how best to alleviate her pain. My therapist colleague's awareness of how to uncover significant personal information and concerns, his ability to look at the whole system—patient, family, and doctor—and his skill at identifying opportunities for attitude and behavior change (the patient's, family's, and mine), and strategies to accomplish these, were invaluable to me

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“...my patient's trust, my intimate familiarity with her medical history, and my ability to communicate to her and her husband what seemed to be going on in her body were also invaluable to what (my colleague and I) could accomplish as a team.”

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In the same way, my patient's trust, my intimate familiarity with her medical history, and my ability to communicate to her and her husband what seemed to be going on in her body were also invaluable to what we could accomplish as a team. Had I not been an essential part of the process, it's a good chance that the G's would never have accepted a referral for counseling. Had the counseling not been jointly conducted, my medical work with this patient, and the counselor's work would not have



been closely coordinated and, in my view, would have been much less effective.

This represents one example of a close physician-therapist collaboration, one that involved 45-50 minute sessions at intervals of every three to four weeks, most of them jointly conducted, and continuing after two years. There are many ways to conduct collaborative care, ranging from ongoing consultation about a case, to co-therapy sessions, to referral for intensive work by the mental health specialist, depending on the needs and preferences of the patient and the capabilities and interests of the caregivers. However, there are several principles to be met if collaborative care is to be successful. First there should be regular, easy communication between the physician and therapist. This is often best facilitated by having regular opportunities for interaction, such as with a shared workspace, for at least part of the week. In our work on this case, Joe and I would meet for five to 10 minutes to discuss strategy prior to meeting with the family, and would debrief for another five minutes afterward. Occasionally we would break during a session to modify our strategy. Second, there should be agreement about the goals of treatment. In this case it was to help the patient (and physician!) cope better with pain that couldn't be cured. Third, it is important for the physician and therapist to share a family, or "system"-oriented approach to care—that is, a willingness to think about patients and their problems in the context of "family" or other important social system. This involves consideration of how the patient's problem affects the family and, especially, how the family affects the problem and can be mobilized to be part of the solution. Finally, there needs to be a trust and respect between the collaborating caregivers, with each understanding and valuing the perspective of the other. Such relationships take time to build, but are a worthwhile investment.

Collaborative care, certainly at the level of co-therapy, raises questions about billing for services and adequacy of

reimbursement. In the case described here, care was provided in an academic center, often with resident physicians behind an observation mirror. Part of our time was covered by funds allocated for teaching, which lessened the need to bill enough to compensate two professionals for their time. Only the physician billed for the sessions, listing several diagnoses in addition to depression. Those interested in further discussion of the logistics of collaborative care are referred to a recent text by Seaburn, et al.<sup>12</sup>

We firmly believe that collaborative care has the potential to save money over the long term by increasing diagnostic accuracy and treatment effectiveness, and by reducing the utilization of unnecessary services. As other clinicians have experiences similar to our own, and as these experiences are documented in clinical studies, insurance coverage should become less of an issue.

Although there is a need for further research on the results of close collaboration between mental health and medical practitioners, many of us who have used this model are impressed by its value to patients and practitioners alike. We recognize that this approach is not necessary and may not be practical for many of our patients, but that those who suffer from severe, chronic, and poorly understood conditions that disrupt healthy functioning may particularly benefit. We believe that the collaborative approach offers many of our most challenging patients the patient-centered care that doctors and patients have long advocated, and that doctors working alone are often unable to provide. □

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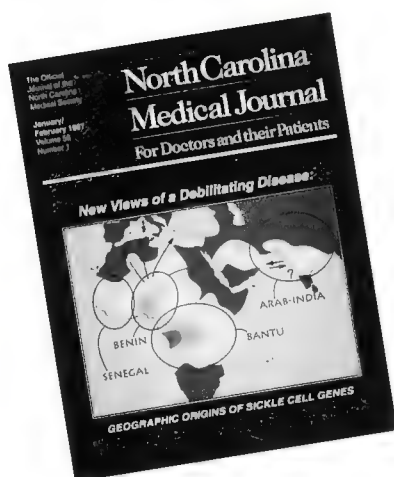
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# Physician-Assisted Suicide

## Lessons From the Kevorkian Trials

Bernard J. Carroll, MB, PhD

In February and again in May 1996, Dr. Jack Kevorkian was tried in the Oakland County Circuit Court, Michigan. He was charged with violating first a state law, then the common law against physician-assisted suicide. At the request of Geoffrey Fieger, Dr. Kevorkian's *pro bono* attorney, I appeared as an expert witness in both trials. My testimony dealt primarily with psychiatric issues but inevitably also with the more general matters of professional ethics raised by these prosecutions. The experience reinforced my belief in two foundations of our pluralist society: the Golden Rule and the jury system.

Though the outcomes were hardly a foregone conclusion, both juries acquitted Dr. Kevorkian, so patients remain free to request and receive his help. During the period of these trials the Second and the Ninth United States Circuit Courts of Appeal, hearing independent cases concerning state laws prohibiting physician-assisted suicide, issued major decisions protecting the right of patients to end their suffering with medical assistance. Physicians have become more willing than ever to state publicly that they render such assistance. Witness the recent disclosure that 25% of doctors caring for patients with AIDS have actively assisted Mother Nature in the terminal stage of the disease. The current respite in criminal trials of Dr. Kevorkian gives us the chance coolly to discuss the main issues. In this article I will focus on the major lessons of the two trials for physicians, leaving it to others to discuss the legal nuances and the social implications of these events.

### Why Were the Trials Held?

H. L. Mencken described a puritan as a person consumed by the fear that somebody, somewhere is having a good time. Today's puritans are beset by the fear that somebody, somewhere will escape the suffering of advanced disease by ending their own life, God forbid, with the help of a physician. Both the old and

the new puritans say the source of their anxiety is concern for the "slippery slope" down which any moral laxity must take us. Both groups cast about intolerantly to police the private actions of total strangers in the conviction that deviance from their absolute standards will lead to social degeneracy. These new puritans are dangerous people, driven by the classically psycho-neurotic puritan dynamic of unconscious reaction formation. As the prosecutors of Oakland County, Michigan, demonstrated, the new puritans have a capacity for the sadistic dehumanization of suffering patients and their relatives far worse than anything they accuse the other camp of possessing. Little wonder that the attack was ferocious, as I saw and felt when testifying in both trials. Despite the moralizing face the prosecutors tried to present to the courts, the neurotic puritan dynamic was only too obvious. Before both juries I characterized the prosecutions as petty and vindictive. As a sad commentary on "the people's prosecutors," the relatives and friends of the patients refused to cooperate, even though given immunity, because they saw that the prosecutors were determined to trivialize the patients' suffering and to ridicule the patients' memories in their zeal to convict Dr. Kevorkian.

### What Is Suicide?

Suicide is a term that people think they understand until they are forced to reflect on it. Within the Judeo-Christian tradition suicide is considered the unforgivable sin, an act of ultimate despair. In the puritan view, moreover, a suicide is a suicide. That view ignores a variety of suicidal behaviors that span a wide spectrum of moral contexts. When physician-assisted suicide is viewed within that spectrum the bald term "suicide" loses its customarily negative connotations.

First, we are today more familiar than we would wish to be with the concept of *religious suicide*, often linked to a political objective. In these cases an individual seeks a greater good through self-immolation, bolstered by the promise of a paradise that the ayatollahs describe in lasciviously sensual terms.

In Western societies a more familiar—and culturally sanctioned—act is *altruistic suicide*. A famous example is Capt.

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Lawrence Oates, who walked away from Scott's South Pole expedition to his certain death in an Antarctic blizzard, hoping to improve his companions' chances of survival, as he believed his own debility threatened the entire team. This example was used to educate the juries about the issue of primary intention. In its context, Oates' behavior had the goal of saving others' lives. Though he did something that in another context could be judged morally reprehensible, he is viewed in this context as having acted with heroism, and he has become a cultural icon. The juries had no difficulty extrapolating this principle to the cases being tried.

A third culturally sanctioned category is *preemptive suicide*, performed as a means of avoiding inevitable pain and suffering. An outstanding historical example is that of the Jewish encampment at Masada. Knowing that they were about to be overrun by the 10th Roman Legion, the defenders of Masada committed group suicide in order to prevent the rape, torture, suffering, and death they knew would follow. More current examples are the widespread but seldom discussed suicides of Jews, Gypsies, and homosexuals to avoid degradations and death in the concentration camps of the Nazi Third Reich. Nobody today calls those Holocaust suicides morally reprehensible. Even the government of the United States sanctions preemptive suicide, as when the Central Intelligence Agency provides cyanide capsules to its operatives so that they will have a choice for avoiding torture in the event of capture. Once again, the Kevorkian juries had no difficulty seeing the parallels between these examples of preemptive suicide and the cases being tried. They accepted our point that it makes no moral difference whether the pain and suffering being avoided through preemptive suicide result from incurable disease or from the malevolence of other people.

Finally, we have the category of *clinical suicide*, committed under the judgment-distorting influence of a psychiatric disorder such as major depression, schizophrenia, alcoholism, and adjustment disorders. The major clinical correlate of these suicides is not the diagnosis *per se* but the cognitive symptom of hopelessness, sometimes delusional, sometimes not. Clinical suicides represent attempts to relieve intolerable psychic pain. Most are preventable, and therapeutic optimism is always in order, even in refractory cases.

When this spectrum of suicides was presented in court, the prosecutors were deprived of the rhetorical tactic of using the naked term "suicide" with its automatically pejorative overtones. They were also prevented from focusing concretely on the suicidal acts without reference to the primary intent of both the patients and Dr. Kevorkian, which was to relieve pain and suffering.

## What About Untreated Depression?

A significant issue in the trials was whether the cases represented preemptive or clinical suicides. The diagnosis of clinical suicide requires the diagnosis of a psychiatric disorder. Fortu-

nately, Dr. Kevorkian had videotaped interviews with each patient. I spent considerable time reviewing the videotapes and they were seen in part by the juries as well. The taped sessions were not structured as formal mental status examinations but each covered a wide enough range of content that an experienced psychiatrist could form a reasonable judgment about the patient's clinical state. The videotapes also contained good samplings of the nonverbal behavior and communications of the patients.

I found none of the four patients in the two trials to be cognitively impaired or psychotic. None acted under the force of delusions about their disorders or their prognoses. All were competent to make decisions. All were in a state of emotional distress, to varying degrees, but none was in a state of clinical major depression. All had been successful, independent persons who had become overwhelmed by their medical conditions, yet they remained willing to try any reasonable treatment which was expected to help them. The medical conditions in question were formidable: two patients had a terminal, progressive neurologic disorder (amyotrophic lateral sclerosis [ALS], and multiple sclerosis), each with extensive involvement of the bulbar and respiratory muscles; one patient had terminal multiple myeloma with severe pain and imminent spinal cord compression; and one patient had intractable vulvodynia and secondary central pain syndrome associated with genital scarring after radiation injury and vulvectomy. In this last case a prefrontal lobotomy had been seriously proposed as the only remaining treatment option.

Almost all symptoms of depression displayed by the patients could be attributed to their medical conditions or to the treatments they were receiving. Their emotional state would be best characterized as grieving, which is not a pathologic response. We forcefully made the point before the juries that being emotionally upset, even having crying spells, is by no means equivalent to a major depression. The prosecutors did obtain the services of one psychiatrist who testified at the May 1996 trial that both patients were depressed. The jurors did not find his testimony credible, however, when they learned that the prosecution's expert witness had not viewed the videotapes, that he had only the sketchiest of medical records on which to base his opinion, and that most symptoms of "depression" he cited were due to the primary medical conditions.

The videotapes were very persuasive to the jury: an average person could see that the patients did not look, act or speak as though they were in the grip of a morbid depression. The jurors easily identified with the patients, who appeared as stunningly ordinary people discussing their situations on videotape in simple, direct terms, without histrionics or self-pity. The jurors concluded that the patients had made rational decisions for preemptive suicide. They could empathize with the patients' situations and apply the simple Golden Rule, "Do for others as you would have them do for you." Aided by the videotapes, the jurors could imagine themselves facing the same choices, making the same decisions, and hoping that somebody like Dr. Kevorkian would be there to deliver them from their suffering.

Not surprisingly, the prosecutors strove mightily but unsuccessfully to prevent the videotapes from being shown to the jurors.

The criteria for diagnosing major depression in patients with serious medical illness are being actively researched. The last word on the subject is a long way off. Two relevant conclusions of the studies conducted to date are: 1) it is extremely difficult to validate in the medically ill diagnoses of major depression made by the usual psychiatric criteria; 2) "depressed" medical patients have not been shown to respond specifically to antidepressant drugs, that is, their responses to drugs do not surpass their responses to placebo. There is no basis in controlled clinical trials to mandate as the standard of care the treatment of such patients with drugs, psychotherapy, or anything other than treatment of the primary medical condition. The reason, of course, is that many of the psychiatric "diagnoses" are invalid because medical symptoms (weight change, lassitude, anorexia, fatigue, poor concentration, sleep disturbance) are mistaken for psychiatric symptoms. The juries in both trials were persuaded by this perspective. They also discounted major depression as a factor after hearing that all the patients had received antidepressant treatments long in advance of the decision to end their lives.

Parenthetically, one must acknowledge here the masterly work of Dr. Kevorkian to support the patients for months to years, encouraging them to seek other options for relief of their suffering, especially psychiatric help and pain clinic management. The conclusion that all practical options were exhausted was not Dr. Kevorkian's but was conveyed to the patients with varying degrees of forthrightness by their own physicians. Far from being the impulsive "Dr. Death" portrayed by the media, Dr. Kevorkian acted conservatively in his relationships with the patients until the final decision was reached.

## But Should Doctors Help?

It is one thing to recognize that patients may choose pre-emptive suicide rationally and unaffected by psychiatric illness, but quite another to say that doctors should help them do it. At least, it is quite another thing to say so out loud. Yet as Sherwin Nuland makes clear in his book, *How We Die*, doctors have a long tradition of quietly helping terminally ill patients die quickly and easily. This is an area of medical practice in which euphemism and obfuscation abound. It is a closely veiled practice of the guild, the more mysterious the better to avoid accountability, audit, or explanation to outsiders. When it is done well it is magical. The preferred technique is to narcotize the patient with excessive amounts of morphine to the point of respiratory arrest, all the while humbly declaring one's lack of skill in judging just how much pain the patient is enduring, and begging the forgiveness of the relatives for not more effectively relieving the patient's suffering. By the time it is over, usually not a long time, the grateful relatives have little awareness of what has happened, the hospital or hospice staff know better

than to say anything, the patient has been spared a few days to a few weeks of agonial suffering, and the physician has experienced a satisfying reinforcement of his or her sense of mastery of the art of medicine. What could be wrong with any of that? It was good enough for Edward VII and for Sigmund Freud on their way out wasn't it?

There are other scenarios but that is the classical model of autonomous and omnipotent decision-making by the physician. In this scenario the physician is accountable only to professional peers and then only indirectly. In the view of many physicians, Jack Kevorkian's most egregious fault lies not in helping patients but in his openly defiant publicizing of his work. The guild did not appreciate having the screens removed from the doorway to the dying room. They fear that some of their freedom to help patients die quickly and easily, without publicity and with no questions asked, has been lost. They are right. And now that a societal searchlight is on the matter, there is a new focus on the questions how and when.

## A Natural Death?

At the trial in February 1996, it was stated that Merion Frederick, dying of ALS, unable to swallow, unable even to hold her head up, would have been permitted under Michigan law to end her suffering by starving herself to death, refusing feedings through her stomach tube. She was competent to make that decision and had she done so her case would never have been a topic of discussion in the Oakland County Circuit Court. Never mind that she would suffer pitifully in the drawn-out process of starving. Never mind that one would be prosecuted for doing the same thing to a dying animal. Never mind. It would be a natural death, that was the important thing, even more important than a humane death. It was put to her adult children that as law-abiding citizens they should have influenced her in that direction rather than support her in the course she took. Naturally, they rejected these sadistic suggestions in the most derisive terms. That was not a good moment for the hapless prosecutors.

The jurors likewise were not impressed by this argument for a natural death. They did accept our position that the duty of a physician is always to relieve suffering but not necessarily to prolong life at any cost to patient or society. The relief of suffering is not only a duty of the physician, it is at the same time a right of the patient. The competent patient can make a legitimate claim on society for this right. Once it has been determined that the patient's suffering should end, even if that entails ending the patient's life, the only remaining considerations are that the death be rapid, painless, and certain—a humane death. It is not important that the means adopted be a traditional "medical act" such as the narcotizing scenario described above. As a recent English commentary noted, "It is the issue of the patient's legitimate interests that concerns about euthanasia must address and not the narrow definition of whether or not the intervention is medical."<sup>1</sup> These arguments



prevailed over the prosecution's theatrical rhetoric that the carbon monoxide canisters and potassium chloride solutions used by Dr. Kevorkian have no place in traditional medical therapeutics.

Still, use of such methods is a high hurdle for physicians, and even higher when the patient is not "terminal" in the usual sense of the final phase of illness. The ambivalence of physicians is easy to understand and will be hard to overcome until we remember that it is the patient who performs the final act. That principle of autonomy was affirmed by the Ninth and the Second US Circuit Courts of Appeal in the past nine months.

## But People Will Abuse It

Of course they will. There is no development of culture or society that people will not abuse, human nature being what it is. But that is no reason to make the perfect the enemy of the good. Consider adoption. Could any activity better reflect the life-affirming virtues of charity and compassion than the adoption of a motherless child? Perhaps that was once true—until adoption became an industry, supporting the comfortable lifestyles of legions of professional "charity workers" and responding to the flows of supply and demand, with money changing hands, with black marketeering, and with trafficking in kidnaped infants. These are good reasons to make adoption a regulated social service but none is sufficient reason to make adoption itself a criminal offense. Similarly, puritans might better direct their energies to regulating the practice of physician-assisted suicide than to criminalizing it. The juries understood these points.

## Psychiatric Activism

All societies have a judicial process that permits the involuntary commitment of persons thought to be a danger to themselves, for example, at risk of clinical suicide. A matter of lively concern for the future is that puritanical psychiatrists will subvert and manipulate the involuntary commitment process to force the detention of patients known to be contemplating physician-assisted suicide. Using guerilla tactics if necessary, these psychiatric activists will fabricate psychiatric diagnoses to suit their purpose. We are all too familiar with such radical behavior in the *Roe v Wade* wars.

At the May 1996, trial of Dr. Kevorkian such tainted diagnoses were shamelessly proffered as evidence by the prosecution. An activist psychiatrist who had never met with the patient falsely described herself as the patient's "consultant psychiatrist" in Court papers requesting involuntary psychiatric commitment. A second psychiatrist who also did not meet with the patient completed the second section of the petition for commitment, claiming a diagnosis of major depression. The primary physician caring for the patient had not invited either of these activists into the case. They literally intruded as ethical

busybodies into a matter that was none of their professional business.

The patient was briefly detained at a state psychiatric hospital, then released after examination by the hospital-based psychiatrist, who rendered a diagnosis of pain disorder without a psychiatric diagnosis. The patient and her family experienced the coercive, manipulative, involuntary commitment as confirming their fear that some physicians would go to any length to deny or trivialize her suffering. These activists conveyed the sadistically dehumanizing message, "I will feel better if I force you to remain alive, even though you will suffer more."

Adding insult to injury, the puritan prosecutors did not hesitate to misrepresent these activist shenanigans as valid psychiatric opinions. We were able to deflect these attempts to mislead the jury and to expose the prosecution's tactics for what they were. Just the same, it was a chilling experience to have to stare down a threatening public prosecutor, who used all the license permitted by the rules of courtroom cross-examination, knowing that he was trying to introduce tainted evidence. Observers saw in this episode a conspiracy of the puritan right to subvert the professions of medicine and the law in pursuit of their neurotic agenda. That is why I believe the neo-puritans are so dangerous: they do not respect professional boundaries and codes of conduct because they regard themselves as agents of a higher cause.

## Epilogue

Medicine is a profession large enough and strong enough to accommodate diverse, conscientiously held positions on our role in the ending of life. But not guerrilla warfare. Physician-assisted suicide ought to be a much less divisive issue for the profession than abortion is, if for no other reason than that the dying patient asks the physician to act. There is no movement to coerce the radical right wing or any other members of the profession to participate in physician-assisted suicide. They are free to follow their consciences. The Golden Rule here requires that the rest of the profession be extended the same courtesy of noncoercion and noninterference.

Now that the trials have stopped, what next? That will depend a great deal on where medicine itself goes with the new models of "health care delivery." To the extent that these new models work against the formation of a confidential physician-patient relationship which is sustained over years and within which physicians can quietly help dying patients in the traditional way, then patients will demand solutions that, to my taste, are less palatable. Solutions like Obitaria—organized places where just a few doctors specialize in physician-assisted suicides—which I think is one of Jack Kevorkian's nuttier ideas. But I can imagine worse. I can imagine the devolution of assisted suicide into a "health care benefit" administered by one of the transient functionaries in a "health care delivery system," perhaps an Employee Assistance Program gatekeeper, who arranges for the actual work to be done in the most cost-

effective way by the physician extender of the day. After all, it's not exactly rocket science, is it?

If we hope to prevent such an outcome, the lessons of the Kevorkian trials will be important. First, ordinary people as patients and as jurors accept that there can be valid claims for physician-assisted suicide; the pressures on physicians from this direction will only grow, and it is not too early for us to think of regulatory procedures, now that the phase of criminalization seems to be over. All schools of thought within the profession will rightly want to be heard in the process of establishing guidelines. Second, a spirit of reciprocal tolerance within the profession is called for rather than neurotically driven activism that subverts professional standards (to say nothing of profes-

sional etiquette) in the diagnosis and management of suicidal risk. Third, physicians cannot assist patients at the end of life in the customary ways if the health care delivery system destroys the tradition of enduring, confidential relationships between physicians and patients. We can thank Jack Kevorkian for what he has done to force us to pay attention to these issues, even as we curse him for upsetting the comfortable old system. But then, if the comfortable old system had been working right all those patients would not have found their way to Jack Kevorkian in the first place, would they? □

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## Endnote

by Assad Meymandi, MD, Editorial Board member, and guest editor, "Aspects of Elder Care," Nov/Dec 1996 special issue

The topic of physician-assisted suicide deserves robust examination, debate, and public scrutiny. In 1994, Oregon voters passed a law legalizing physician-assisted suicide (it has been blocked by a challenge), and only recently has the Supreme Court shown willingness to hear this matter.

There is a real danger that the debate will become marred by emotionality, dogmatism, and polarization. The discussions must be conducted in a flexible but dispassionate, logical, and sober atmosphere. I was distressed

to observe a television broadcast of flamboyant behavior by Dr. Kevorkian's legal team after one court victory. This serves no purpose.

As physicians, we must remember that our role is to advocate for our patients, not serve as a mere doctrinaire system of beliefs. Dr. Carroll's seminal article forcefully furthers these arguments. I am happy to see it published.

(On the next two pages, Dr. John Glasson summarizes current American Medical Association initiatives on physician-assisted suicide.—Eds.)

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## Physician-Assisted Suicide: Current AMA Initiatives

by John Glasson, MD, Immediate Past Chair, AMA Council on Ethical and Judicial Affairs, and retired orthopedic surgeon, Durham

The American Medical Association and its Council on Ethical and Judicial Affairs have explicitly opposed physician-assisted suicide since 1991 when the report "Decisions Near the End of Life" was issued to the House of Delegates at its Annual Meeting. Two years later an additional report explored many of the ethical concerns associated with the practice of physician-assisted suicide, and revealed problems with the proposed regulatory measures.

During the past year, the issue has returned to the spotlight, and remains debated by the public and the medical profession. In 1995, Michigan prosecutors attempted to apply a state law to convict Dr. Jack Kevorkian, a retired pathologist who had helped two patients commit suicide. The fact that he did assist was never in question, but he was acquitted of criminal involvement. Two further attempts to prosecute him failed, the latter under common law rather than statutory law. Amid these proceedings, Dr. Kevorkian filed a \$10 million lawsuit against the AMA for libel. He also became an outspoken advocate for the right of patients to control their own deaths.

As the Kevorkian cases played out in the Michigan court system, two decisions of far greater legal significance were reached in the Ninth and Second Circuit Courts of Appeals. The Ninth Circuit Court ruled that controlling the time, manner, and circumstances of death are the constitutional right of each individual. Consequently, states cannot override that right without due process in accordance with the Fourteenth Amendment. Perhaps more significantly for physicians, citizens have grounds under this ruling to demand assistance in dying from the medical profession.

The Second Circuit Court reached a similar conclusion about physician-assisted suicide, but on different constitutional grounds. The court argued that physician-assisted suicide is covered by the equal protection clause of the Fourteenth Amendment; it found no appreciable difference between the withholding or withdrawing treatment and assisted suicide. Since the result (death of the patient) is the same in either case, the court stated that the acts themselves must carry equal moral status. And because patients on life support can end their lives merely by withdrawing such support, those not on life support who require active assistance to die cannot be denied that opportunity. Following the equal protection argument, if death is the desired end, the state cannot restrict one group from an opportunity to obtain that end while another group is not restricted.

Both these arguments significantly shift the debate and alter the context within which discourse about physician-assisted suicide must be conducted. Offering constitutional protection to assisted suicide gives it status that

no other form of health care currently enjoys (with the possible exception of abortion, which is covered under the broad heading of privacy). Perhaps more troubling is the fact that the Second Circuit decision blurs distinctions in end-of-life care that have been established over decades of legal action and ethical discourse. Both legally and ethically, we recognize a patient's right to stop unwanted care based on a perception of the harms associated with treatment. That right is upheld despite the possibility that exercising it leads to death. It is upheld as a means of avoiding the suffering caused by treatment, not because it affords patients the means to end their lives. That argument does not hold with assisted suicide. Furthermore, lumping withdrawal of care with physician-assisted suicide, runs the risk that patients will be unable to refuse heroic measures because their decision will be seen as "suicide."

The court decisions make it difficult, perhaps impossible, to construct adequate safeguards limiting assisted suicide. By contending that assisted suicide is a matter of individual choice between a physician and a patient, the Ninth Circuit Court established a broad right that cannot be restricted only to the terminally ill or even to those suffering from illness of any kind. Under the court's ruling, the responsibility for establishing eligibility for death belongs to the individual whose final judgments are not subject to review by the state. In short, patients can use any subjective criteria to determine their suitability for discontinuing life; there will be no real way to prevent them from acting upon their conclusions.

The Second Circuit Court argument also creates problems with regulation. Basing its opinion on the equal protection clause, the Court opened the door to leading from assisted suicide to overt euthanasia. Assuming physician-assisted suicide were made legal, under the Fourteenth Amendment physicians could not refuse to provide life-ending measures simply because a patient was incapable of self-administering the lethal agent. Patients whose debilitating illness prevented them from committing suicide would be allowed to request and receive active euthanasia. The unspoken but inevitable endorsement of euthanasia is a tragic consequence that many jurists and policymakers have not considered.

### Relevant Studies

Several papers published in the *Journal of the American Medical Association* and the *New England Journal of Medicine* have fueled the flame of public debate. *JAMA* published the first of these studies (called SUPPORT) in November 1995. It documented the failure of an experi-



mental protocol, applied at five reputable teaching institutions, to bring patterns of care into accordance with patients' living wills. Patients had documented their wishes for end-of-life care, but the percentage of physicians who upheld those wishes was low. The SUPPORT study strengthened the perception of patients that they have lost their autonomy and that regaining control of their own destiny through the use of advance directives is not a viable option. In short, SUPPORT brought into sharp focus the problems surrounding end-of-life care and set the stage for groups who maintain that the central issue in assisted suicide is respect for the autonomous decisions of competent patients.

In February 1996, the *New England Journal of Medicine* published two studies documenting the attitudes of physicians and the public in Michigan and Oregon regarding physician-assisted suicide. These studies show apparently strong support among the public and the profession for assisted suicide, but the data should be interpreted with caution. For instance, one of the questions depicted a scenario in which the patients were asked to imagine they had a "terminal illness that is certain to involve a great deal of pain and suffering." A large number of respondents said they would consider assisted suicide under these circumstances. It is important to note, however, that the premise is not well-grounded in the medical realities of pain management. With appropriate palliative treatment, almost no patients should face certain pain and suffering; the implications of data gleaned from such a question are entirely unclear, but the surveys suggest that some segments of society do support assisted suicide.

In March 1996, *JAMA* published a study indicating that patient requests for assisted suicide are not rare, and that a number of physicians have, in fact, granted these requests. The *New England Journal of Medicine* published a survey in which several nurses indicated that they had participated in acts that contributed directly to the death of patients. The latter study drew heated criticism based on what many perceived to be poor methodology, but both studies point to a willingness of at least some health care providers to act outside of the law when they perceive need.

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*Physician-assisted suicide occurs when a physician facilitates a patient's death by providing the necessary means and/or information to enable the patient to perform the life-ending act (for example, the physician provides sleeping pills and information about the lethal dose, while aware that the patient may commit suicide).*

*It is understandable, though tragic, that some patients in extreme duress—such as those suffering from a terminal, painful, debilitating illness—may come to decide that death is preferable to life. However, allowing physicians to participate in assisted suicide would cause more harm than good. Physician-assisted suicide is fundamentally incompatible with the physician's role as healer, would be difficult or impossible to control, and would pose serious societal risks.*

## The AMA Response

- Perhaps the AMA's most important response is a recognition that physicians have not adequately met the needs of dying patients. Methods exist to provide comfort in virtually all terminal illnesses, but they are tragically underused. Consequently, the AMA's primary goal is to focus attention on the resources available to meet the psychological and physical needs of those facing the end of life. Fear of pain and loss of dignity—the cornerstone of public support for assisted suicide—needs to be addressed. To achieve its goal, the AMA is planning a massive "train-the-trainer" project to educate physicians about advance directives and palliative care. The AMA has formed a coalition of health professionals to pool the resources of disparate groups in carrying out educational projects to improve the quality of care at the end of life.

- The US Supreme Court has agreed to hear cases on physician-assisted suicide early this year and is expected to render a decision in July. The AMA and 45 other medical and health professional groups joined forces in a friend-of-the-court brief urging the Court not to legalize physician-assisted suicide. The groups include the American Nurses Association, the American Psychiatric Association, and the North Carolina Medical Society. At least one medical group, the American Medical Students Association, is expected to be among those filing briefs in support of legalizing physician-assisted suicide. In a related research study at Duke University, Dr. Harold Koenig recently reported that elderly patients usually oppose physician-assisted suicide, although most of the younger members of their families support this option.

- The statement below on physician-assisted suicide from the 1996-97 *AMA Code of Medical Ethics* summarizes the current AMA position. Its essential elements have been strongly and proactively supported by both the House of Delegates and the Board of Trustees in 1995 and 1996 in formal update reports:

*Instead of participating in assisted suicide, physicians must aggressively respond to the needs of patients at the end of life. Patients should not be abandoned once it is determined that cure is impossible. Multidisciplinary interventions should be sought including specialty consultation, hospice care, pastoral support, family counseling, and other modalities. Patients near the end of life must continue to receive emotional support, comfort care, adequate pain control, respect for patient autonomy, and good communication.*

*Issued 1994 based on: "Decisions Near the End of Life," issued June 1991, and "Physician-Assisted Suicide," issued December 1993 (JAMA 1992;267:2229-33). Updated June 1996. Source: AMA. Code of Medical Ethics: Current Opinions with Annotations, 1996-1997 ed. Chicago: AMA, 1996, pp 56-7 sect. 2.211*



# Most Anesthesiologists No Longer Restrict Clear Fluids for Eight Hours Before Elective Surgery

A. Colin McKinley, MD, Robert L. James, MS, and Grover R. Mims, III, MD

For many years an overnight fast has been standard practice before elective surgery. The rationale was that an empty stomach would prevent the aspirating of gastric contents, but the origin of the practice of withholding food and fluids after midnight is obscure. Not that there is no interest in the subject; an on-line literature search located more than 600 references published in the past 10 years dealing with fasting regimens to prevent aspiration. Recently, a number of articles<sup>1-3</sup> have questioned whether clear fluids should be withheld as part of the overnight fast, and several have recommended short periods of fluid deprivation.

Standard physiology texts state that the stomach empties of clear fluids in 15-30 minutes, but in obstetric and trauma cases, where gastric emptying time is increased, it is often impossible to wait for the stomach to empty before surgery. The pediatric literature recommends brief fasts for infants and children since an overnight fast can cause dehydration and hypoglycemia, and a stormy, difficult induction of anesthesia. There has been much debate over the status of breast-fed infants, but the consensus seems to be that breast milk, being a semisolid food, should be restricted and only clear liquids given during the two to three hours before elective surgery.

## Anesthetic Practice in the US and in NC

To determine whether the duration of fasting recommended by anesthesiologists has changed, we conducted a national survey<sup>4</sup> and found that withholding clear fluids for eight hours before elective surgery is no longer common practice. Of the respon-

dents to our survey, 94% were aware of recent recommendations for shorter fasting times for clear fluids; 67% had changed their practice to allow clear fluids three to six hours before surgery and only 15% still required a seven- to eight-hour fast before elective surgery. Most considered coffee without cream a clear fluid and almost two-thirds allowed black coffee during the three to six hours before surgery. Less than 1% of anesthesiologists restricted fluids for eight hours before elective surgery in children. Most of our respondents felt that surgeons were unaware of the recommendations regarding shorter fasting times, but less than half were trying to educate surgeons about this. A small number of anesthesiologists felt that allowing clear fluids during the eight hours before elective surgery made their practice more difficult, probably because these patients may not be able to be moved up in a busy schedule.

We followed the national survey with a survey of all North Carolina anesthesiologists, to find out whether they, too, were aware of the recent literature recommending shorter periods of fasting from clear fluids before elective surgery, and whether they had changed their practices as a result. The results of the NC survey (see sidebar, next page) mirror the national survey, except that more NC anesthesiologists use shorter fasting times before elective pediatric surgery. Both surveys indicate that shorter fasting times have become the norm.

## Discussion

The first recorded anesthesia-related death may have been due to aspiration of gastric contents.<sup>5</sup> Later, Mendelson called attention to the possibility that gastric acid was aspirated during anesthesia in a number of obstetric cases,<sup>6</sup> and for a time "Mendelson's Syndrome" referred to the clinical consequences of aspiration. The fulminating pulmonary edema described by Mendelson was similar to that reported by Winternitz<sup>7</sup> who

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instilled acid into rabbit tracheas as part of his study of gassing deaths after World War I. Subsequent review of Mendelson's work indicated that many of his cases may have been due to particulate rather than acid aspiration. It seems safe to say that *the seriousness of particulate aspiration is related to the volume of aspirate in contrast to acid aspiration where a small quantity of acid gastric contents may be a potentially lethal event.*

Restricting solids for eight hours before elective surgery remains a legitimate way of reducing the danger of particulate aspiration. A number of ideas for reducing the danger of acid aspiration have been proposed and discarded.<sup>8-12</sup> These include the use of oral antacids, H<sub>2</sub> blockers, and emetics. Oral antacids themselves can cause particulate aspiration, and the routine use of H<sub>2</sub> blockers is not considered a cost-effective intervention in such a rare event. Neither patients nor anesthesiologists would accept the routine use of emetics to guarantee an empty stomach. For patients at risk of aspiration, awakened intubation, cricoid pressure, and rapid sequence induction are recommended.

Much of the concern about the risks of acid aspiration center around the small volume of acid reportedly needed to put patients at risk (25 cc of stomach fluid with a pH less than 2.5). Unfortunately, the index paper<sup>13</sup> that defined pH and volume variables was never published in a peer reviewed journal, and when the study was repeated,<sup>14</sup> it was found to be grossly in error. We now believe that patients can have larger gastric volumes of low pH without being at risk for acid aspiration. A number of papers report that shorter fasting times for clear fluids do not increase risk, and some even advocate giving water up to two hours before surgery to increase gastric emptying.<sup>1-3</sup> A review of insurance claims indicates that acid aspiration during anesthesia is uncommon. Several authors<sup>2,3</sup> suggest that we better define fasting status for clear fluids for elective surgery.

Most North Carolina anesthesiologists are aware of recent recommendations and no longer restrict clear fluids for eight hours before elective surgery. The recommendations for shorter fasting times for clear fluids have been made within the past 10 years and anesthetic practice is probably still changing because of this. Shorter fasting times for infants and children have been recommended for more than 20 years and are now accepted by almost all anesthesiologists. The advent of managed care means that increasing numbers of patients are being admitted to hospitals the morning of elective surgery. Anesthesiologists must often rely on others for the preoperative preparation of these patients. An understanding of the new recommendations about fasting from clear fluids should help in preparing patients for elective surgery. Certain patients (those who are diabetic, obese, or who have peptic ulcer disease or gastroesophageal reflux) are still at risk for acid aspiration; primary care physicians should check with an anesthesiologist in preparing such patients for elective surgery. □

## ***Survey of NC Anesthesiologists Regarding Nature of Fasting Before Elective Surgery***

The North Carolina Society of Anesthesiologists supplied us with the names and addresses of all members. We mailed a one-page questionnaire to the 408 Society members, and followed this with a second mailing to nonrespondents; 356 (88%) of the anesthesiologists contacted returned a questionnaire.

The survey sought information on current attitudes about duration of fasting, whether fasting orders differed between adult and pediatric patients, and whether shorter fasting orders do or might make practice more difficult (see Table 1, next page). Information about hospital type and size was also requested on the survey form.

The percentage of respondents giving each possible response to a survey question was calculated, and the 95% confidence intervals for these percentages were calculated using either exact methods or the normal approximation of a binomial where appropriate. Chi-square analyses and Fisher's exact tests were used to explore possible relationships between demographic factors and fasting practice. Alpha levels of these tests were adjusted for multiple comparisons using the Bonferroni method.

The primary objective of our survey was to determine whether or not North Carolina anesthesiologists require eight-hour fasting from even clear fluids before elective surgery. The results of our survey are shown in Table 1. Almost 94% of the respondents were aware of recent literature recommendations that fasting times be shorter than eight hours, and 67% had changed their practice to accommodate this. Only 15% still use seven- to eight-hour fasts before elective surgery; over two-thirds limit fasting to three to six hours. The majority of respondents consider coffee without cream to be a clear fluid, and almost two-thirds allow coffee up to three to six hours before surgery. Less than 1% of the respondents restrict fluids for eight hours before elective surgery for pediatrics.

Eight percent of respondents thought that less than eight-hour fasts had made their practice more difficult. Allowing clear fluids the morning of surgery may make it difficult to move cases up in a busy surgical schedule, and some anesthesiologists feel that this makes their practice more difficult. Most of those surveyed felt that surgeons were not aware of current recommendations for shorter fasts, but less than half were trying to inform their surgeons of this trend.

No significant associations were found between survey responses and the demographic factors assessed (population base of the hospital; bed capacity of hospital; presence of a trauma center at the hospital; whether the hospital was a teaching institution; whether there was a teaching hospital in the city of practice).

The results from North Carolina agree with those from our recently published survey of anesthesiologists nationwide, although more NC anesthesiologists used shorter fasting times before pediatric surgery than the national average.<sup>4</sup>



**Table 1. The practice of North Carolina anesthesiologists regarding fasting before elective surgery\***

1) Are you aware of recent literature with respect to shorter fasting times before elective surgery?	<u>Yes*</u> 94% (93,95)	<u>No</u> 2.5% (1.9,3.1)				<u>Missing</u> 3.2% (1.9,4.5)
2) If yes, has this information changed your way of practice?	<u>Yes</u> 67% (65,68)	<u>No</u> 26% (24,27)	<u>N/A</u> 3.1% (2.4,3.7)			<u>Missing</u> 4.8% (4.0,5.6)
3) How many hours before elective surgery on adults do you allow clear fluids	<u>7-8 hrs</u> 15% (13,16)	<u>5-6 hrs</u> 44% (42,46)	<u>3-4 hrs</u> 32% (31,34)	<u>2 hrs</u> 3.9% (3.2,4.7)	<u>1 hr</u> 0.6% (0.3,0.8)	<u>Missing</u> 4.5% (3.7,5.3)
4) How many hours before surgery do you allow coffee?	26% (25,29)	41% (39,43)	24% (23,26)	2.0% (1.5,2.5)	0.8% (0.5,1.2)	5.9% (5.0,6.8)
5) How many hours before pediatric elective surgery do you allow clear fluids?	0.3% (0.1,0.5)	10% (9,12)	57% (56,59)	23% (21,24)	2.2% (1.7,2.8)	7.3% (6.3,8.3)
6) Does/would these new procedures make practice more difficult?	<u>Yes</u> 7.9% (6.9,8.9)	<u>No</u> 84% (83,86)				<u>Missing</u> 7.9% (6.9,8.9)
7) Are the surgeons aware of this fasting literature?	<u>Yes</u> 22% (21,24)	<u>No</u> 64% (62,65)				<u>Missing</u> 14% (13,16)
8) Have you tried to inform surgeons of this literature?	<u>Yes</u> 43% (41,45)	<u>No</u> 47% (45,49)	<u>N/A</u> 5.3% (4.5,6.2)			<u>Missing</u> 4.5% (3.7,5.3)
9) Is your practice:	<u>Individual</u> 12% (10,13)		<u>Group</u> 83% (82,85)			<u>Missing</u> 5.1% (4.2,5.9)
10) If group practice, has your group as a whole changed fasting times due to the literature?	<u>Yes</u> 38% (36,39)	<u>No</u> 43% (41,46)	<u>N/A</u> 10% (9.0,11.2)			<u>Missing</u> 9.6% (8.5,10.6)

\* Table values show percentages of 356 respondents (to 408 mailed surveys) with 95% confidence intervals in parentheses.

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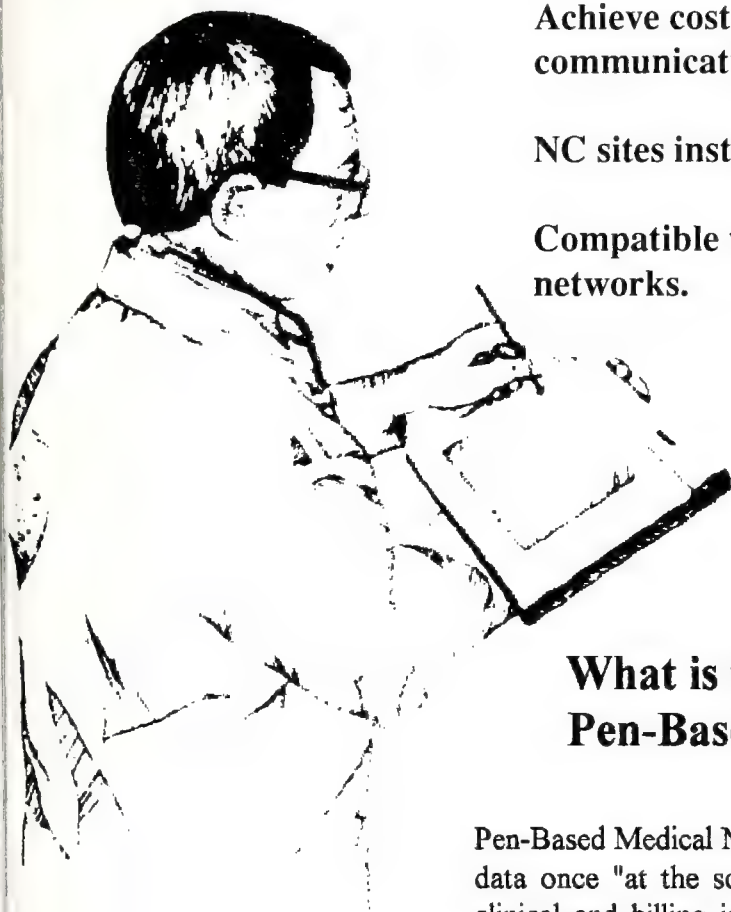
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# Perinatal Substance Abuse Within Central North Carolina A Suburban-Rural Perspective

Pamela Cobb, MD, Katherine Hartmann, MD, John M. Thorp, Jr, MD,  
Connie Renz, MSN, Deborah Stanford, BSN, CNMW, and Kathleen Rounds, PhD

The use of intoxicating substances during pregnancy is a major cause of preventable perinatal morbidity and mortality. Urine toxicology screening studies show that 5%-20% of pregnant women use illicit drugs,<sup>1-3</sup> but most of the studies have been conducted in large urban areas with populations composed of minority, indigent women.<sup>4,5</sup> Since substance abuse is not confined to urban areas, we designed a study to look at the magnitude and duration of perinatal substance abuse problems (and important comorbid conditions) in a suburban-rural North Carolina population.

## Screening for Perinatal Substance Abuse

The Horizons Perinatal Substance Abuse Program is operated by the Department of Obstetrics and Gynecology at the University of North Carolina School of Medicine and funded by the North Carolina Department of Human Resources, Division of Mental Health, Developmental Disabilities, and Substance Abuse Services. The program uses a public health model to provide substance abuse treatment and prenatal care at 14 sites in six suburban-rural counties in central North Carolina: Caswell, Alamance, Orange, Lee, Harnett, and Chatham. Every woman presenting for prenatal care is asked about substance use problems using a modification of the CAGE questions.<sup>6</sup> Pregnant women who respond positively to these questions, or who report current or past illicit substance use, or who have a history of substance abuse problems are evaluated by a certified substance abuse counselor.<sup>7</sup> If the initial screen is found to be

accurate, a formal evaluation is performed at the prenatal care site or at UNC's Substance Abuse Clinic.

The formal evaluation consists of a structured interview with six components: demographic information, financial history, vocational history, trauma history, family support assessment, and drug and alcohol use assessment (the questionnaire is available upon request from the authors). The interviews are conducted in private by certified substance abuse counselors or social workers who have been formally trained to use the assessment instrument. Patients are reassured before the interview that all information is confidential and will not be shared without their permission.

Data from the interviews were stored in a computerized database. Means, ranges, and standard deviations were calculated, but because of the diversity and small number of subjects, we made no statistical comparisons. Numbers of respondents vary by question because subjects could decline to answer any question.

## The Scope of the Problem

Between July 1993, and November 1994, 123 women were evaluated. Maternal age ranged from 15 to 40 years (mean =  $26.8 \pm 6.2$  years); gestational age ranged from 6 to 41 weeks (mean =  $27.3 \pm 9.5$  weeks). The women identified their racial/ethnic background as African-American/black (59%), white (40%) or Hispanic (1%); all spoke English. Figure 1, next page, shows counties of residence; 83% lived in the six-county service region. Patients were referred for evaluation because of current drug use (in 48% of respondents), past substance abuse (47%), positive responses to the CAGE questions (9%), addiction of the patient's domestic partner (8%), physical abuse by the partner (7%), or addiction of the women's parents.

Nine of 119 women said they were currently in school; 60 of 109 women had a high school diploma or equivalent; 23 had

The authors are affiliated with the Horizons Perinatal Substance Abuse Program, Department of Obstetrics and Gynecology, University of North Carolina School of Medicine, 214 MacNider Building, Chapel Hill 27599-7570. This work was funded by the North Carolina State Department of Human Resources, Division of Mental Health and Substance Abuse Services.

attended college or graduate school, and two were college graduates. Twenty-three of 109 said they were working full-time and six, part-time; 69 of 106 respondents said they had worked in the year preceding pregnancy. Social support services were highly used: 70% of the women were using Medicaid; 57%, Women, Infants, and Children's (WIC) nutritional services; 39%, the Baby Love program; 25% received help from the Aid to Families with Dependent Children program; and 7% each used food stamps or public housing assistance. All women used Medicaid or Baby Love programs, or both.

Half the women were single; another 20% lived with a domestic partner, 14% were married, 13% separated or divorced, and 3% were widowed. Sixty-eight of 95 (71%) women reported that the fathers of their unborn children planned to be involved in care of the child. Fifty-two of 115 (45%) already had minor children living with them, and 20 said they were responsible for other adults living in their home. Twenty-five of 109 (23%) had minor children who did not live with them.

Seventy-five of 90 (83%) women said they felt safe in their current living situation, but 18 of 100 (18%) reported that they felt unsafe (unsafe feelings are those produced when a woman is pushed or hit, or is worried that she might be). In all 18 instances, the women reported actual physical violence. The individuals responsible for the violence were husbands in three cases, unmarried partners in six, a parent in one, and other family members in five; respondents declined to specify in three cases. Overall, 61 of 102 (51%) women reported that they had experienced physical violence. Thirty-nine of 97 (40%) reported a history of forced sexual activity at ages ranging from four to 35 years (mean = 16 years); in 20% of instances the perpetrator of forced sexual activity was a family member or the women's domestic partner. Two women reported more than one assailant.

Alcohol (in 72% of cases), marijuana (53%), and cocaine (51%) were the drugs of choice in this North Carolina population (fewer than 10% reported recent use of narcotics or hallucinogens). Twenty-seven (25%) abused one substance; 43 (40%), two; and 40 (36%), three or more substances (excluding nicotine). Six of 65 women (8%) reported intravenous use of cocaine or narcotics. One-half of the 63 cocaine users used alkaloidal cocaine ("crack") exclusively; 24 of the 63 (38%) reported binge use of cocaine. Of 90 women abusing alcohol, 21 (23%) reported tolerance, 11 (12%) reported withdrawal symptoms, and 20 (31%) reported "blackouts." Seventy-eight women said they had abstained from use of mood-altering substances for varying lengths of time (50% for one month or less, 37% for a year or less, 8% for up to five years, and 5% for more than five years).

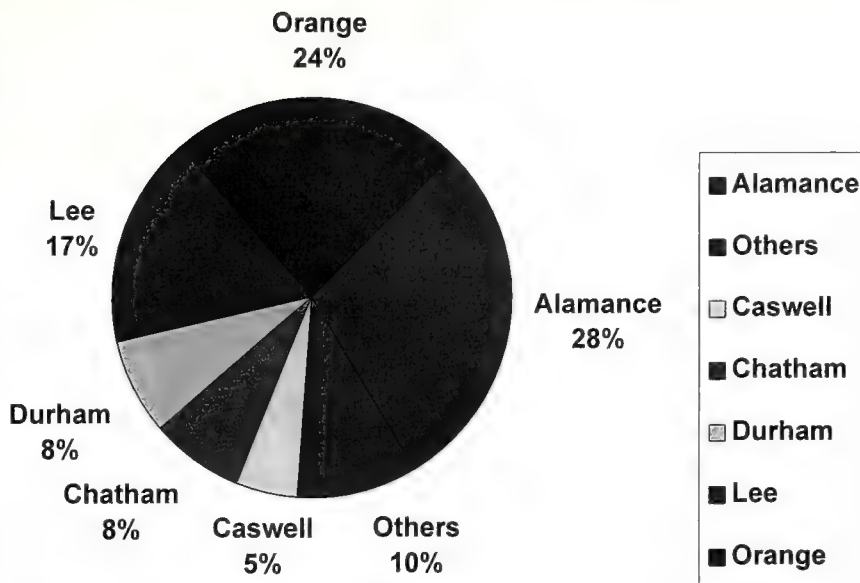


Fig 1: Distribution of county of residence

Forty-one women (38%) had previously been treated for substance abuse, including 39 who had attended a meeting of a 12-step program. Sixty women (58%) thought that one or more first-degree relatives had a substance use problem, and 36 (34%) reported that parents or siblings had been treated for substance abuse. Seventy women (67%) said that their partners currently used drugs, and 35 (39%) felt the partner had a substance use problem.

There was a wide range in frequency of use of all intoxicating substances, from daily use to once per month. Nearly 70% of women who abused alcohol did so three or more times per week, and more than 80% of those who used marijuana or cocaine did so three or more times per week. After becoming aware of their pregnancy, about 25% of women were able to discontinue use of alcohol or marijuana, but very few women were able to discontinue their use of cocaine.

Twenty women (21%) reported previous suicide attempts (four had made more than one attempt); 37 (40%) felt currently suicidal. Eighteen (14%) had undergone psychiatric treatment.

Fourteen women (13%) had been convicted for driving while intoxicated. Forty-two (46%) reported prior arrests. Thirteen women (19%) said they were currently on probation or parole.

## The Fallout From Intrapartum Substance Abuse

Our data show that severe substance abuse problems are not restricted to urban areas. Cocaine use appears to be ubiquitous and superimposed on chronic alcohol and marijuana use. Intravenous use of narcotics or cocaine was rare in our population, but our data were gathered from self reports and not confirmed by toxicological assays.



Substance use problems in this North Carolina population were not limited to individuals, but extended throughout the family; like others,<sup>8</sup> we found a high prevalence of intergenerational addiction. We also found high prevalences of domestic violence, sexual assault, and psychological dysfunction. We are currently evaluating our population for posttraumatic stress disorder, hypothesizing that at least some of these women may be using mood-altering chemicals to medicate themselves for this disorder.

Almost half of our patients have minor children at home and another quarter have children in the custody of others.<sup>9</sup> The presence of children greatly limits the ability of women to accept placement for residential treatment or to attend intensive outpatient treatment. If we want treatment to succeed, we must

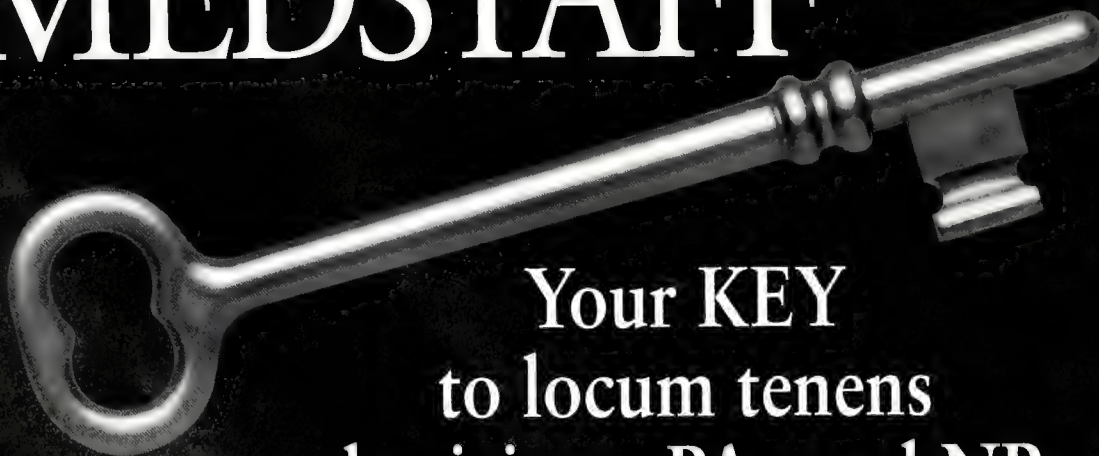
find ways to care for these children. Most mothers will decline treatment if it requires separation from their children.<sup>2,9</sup> The importance our patients place on meeting family responsibilities is demonstrated by the large number of women who are currently employed or have been employed within the past year.

Our results demonstrate the chronic, relapsing nature of substance use problems: 37% of our respondents had received substance abuse treatment in the past and 40% had been able to abstain from drug use for a year or more. This emphasizes the need for long-term treatment that must extend beyond the duration of pregnancy.<sup>10</sup> Programs that emphasize only that we have "drug-free babies" will, in the end, return these children to addicted mothers or dysfunctional families. □

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# Health Watch

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## Wellness is Key For Diabetics

### DON'T LET SICK DAYS GET YOU DOWN

by Cyril A. Allen, MD, MSPH

Along with the ills and chills of winter — comes the cold and flu season. People with diabetes get colds and flu just like others, but when illness strikes, they need to take special care to prevent complications. Illness can send diabetes out of control if precautions are not taken. Sick day management is an important issue for people with diabetes, especially during this time of year.

Common illnesses — such as colds or flu — can affect the control of diabetes. “Illness can make your blood sugar rise,” says Mary Ann Simpson, certified diabetes educator at Rex Healthcare in Raleigh. “Your body is under stress during sickness and can easily become dehydrated, especially if it is a stomach virus with nausea and vomiting. With diabetes, the body has a hard time recovering once it is dehydrated.”

*Cyril A. Allen, MD, MSPH, is a Raleigh-based internist and hematologist. He is Chairman of the Diabetes Care Workgroup of Project DIRECT (Diabetes Intervention Reaching and Educating Communities Together).*

### Monitoring Blood Sugar

According to Simpson, the three most important things to do to prevent problems before and during an illness are:

1. Test your blood sugar
2. Test your blood sugar
3. Test your blood sugar

“The best way to avoid complications during sickness is to monitor your blood sugar,” Simpson advised, “not just when you are sick, but *always* so that you will be aware of any changes. If you have continual readings on your blood sugar, you can take a few extra steps to control your diabetes when you are sick. This can stop a minor problem — like colds or flu — from causing major problems with your diabetes control.”

Control is the name of the game. Monitoring is an essential part of the management of diabetes, and it is even more important during an illness.

- Take your usual dose of medication whether you take insulin or pills. Even if you don't feel like eating, take your insulin.



- Check your blood sugar more often than usual—every one to four hours while awake. Record the results and contact your healthcare provider if blood sugar is over 240.
- Check your urine ketones every time you go to bathroom. Whenever a person with diabetes is ill, regardless of the symptoms or the blood sugar, urine ketones should be monitored. Ketones indicate that the body is “starving” itself and breaking down fats to get the energy it needs. Contact your physician if you have ketones in your urine.
- If your blood sugar is higher than 240, check it during the night also. All people with diabetes should test blood sugar at home when ill, even if they do not monitor at home at other times.
- Over-the-counter medications may also affect your diabetes. Check with your pharmacist or healthcare provider before taking any new medicine, including cough syrups, cough drops, and decongestants.

## Maintaining energy: liquids are important

Fluids are an important part of managing diabetes during a sick day. Try to drink at least 1/2 cup of water or other calorie-free, caffeine-free liquid every half hour. If you are sick to your stomach, take liquids in small sips to avoid vomiting. If you need to, space liquids out over the day by taking a sip every 15 minutes to avoid dehydration.

### Free Liquids

<b>Water</b>	<b>Sugar-free tea or coffee</b>
<b>Broth</b>	<b>Sugar-free soda</b>
<b>Bouillon</b>	<b>Sugar-free flavored drink mix (Kool Aid, Crystal Light, etc.)</b>

## Follow normal meal plan

It is also important to eat the same amount of high-energy carbohydrates that you usually eat. If you can, eat your regular diet. If you are sick to your stomach or vomiting, try to eat enough soft foods or liquids to equal the carbohydrates you would normally get from your diet. The main goal is to feed the body easy-to-eat foods and liquids to keep blood sugar under control.

If you use exchanges, eat 15 grams of carbohydrates for each starch, fruit, milk, or other carbohydrate exchange. If you

have a sore throat and have difficulty swallowing, eat soft foods in place of regular carbohydrates, like bread and fruits. Use the following list to make these exchanges. One serving from this list can replace each serving of bread or fruit in a normal meal plan.

<b>Food</b>	<b>Amount</b>
<b>Fruit juice</b>	<b>1/3 to 1/2 cup</b>
<b>Soft drink (with sugar)</b>	<b>1/2 cup</b>
<b>Gelatin (with sugar)</b>	<b>1/2 cup</b>
<b>Hot cereal</b>	<b>1/2 cup (cooked)</b>
<b>Ice cream (vanilla)</b>	<b>1/2 cup</b>
<b>Broth-based soup</b> (With noodles, rice, potatoes, or beans)	<b>1 cup</b>

Avoid foods that are very hot or very cold because they may increase nausea, vomiting or diarrhea. As nausea decreases, gradually return to a regular diet plan. Divide meals into small feedings at first. Continue to drink extra free liquids until you feel well again and have returned to a normal diet. Record weight changes and any breathing problems and share with your physician.

Even when you start feeling better, you will need to check your blood sugar more often than usual. Continue monitoring your blood sugar until it has returned to normal and ketones are no longer in your urine. Remember a cold or flu can send your diabetes way out of control. This is an important time to be extra careful about your diabetes care.



## Call Your Health Provider

It is imperative that people with diabetes and their family members find an experienced health care provider team to help during times of illness. Illnesses that might be relatively insignificant for the person without diabetes can develop into a major medical emergency in persons with diabetes, particularly with insulin-dependent diabetes. In addition, diabetes itself or its complications, can mimic other serious health problems.

When calling your provider, be prepared to report the following:

- the amounts of food and kinds of fluids taken and when you last ate and drank
- the amount and type of insulin or diabetes pills you have taken and the time
- other medicines you have taken
- your temperature
- your blood sugar and urine ketone results
- how long you have been sick
- presence of vomiting or diarrhea
- any weight loss while sick (a sign of dehydration).

If you are having problems and cannot reach your doctor, go to the nearest emergency department. Call for help if you are alone and cannot take care of yourself.

Meet with your doctor or diabetes educator to work out a personal sick day plan before you become ill. The plan should include:

- name of relative or close friend to call for help
- emergency telephone numbers
- list of medications
- records of blood sugar levels and other monitoring records
- the names of sugar-free, non-alcoholic, over-the-counter medications such as cough medicines and pain relievers
- having the basics on hand such as scales, thermometers, and other supplies

## Reminders for Sick Days

Call your healthcare provider if any of the following happens to you:

- ✓ You are ill and are not getting better, especially if more than one or two days
- ✓ You feel too sick to eat normally and are unable to keep down food for more than six hours
- ✓ You are having severe diarrhea
- ✓ You have weight fluctuations
- ✓ Your temperature is more than 100 degrees for 24 hours
- ✓ Your blood sugar is lower than 60 mg/dL
- ✓ You take insulin and your blood sugar is over 240 mg/dL even after extra insulin
- ✓ You take diabetes pills and your blood sugar before meals is above 240 mg/dL
- ✓ You have other unexplained symptoms
- ✓ You have severe abdominal pain
- ✓ You have a moderate or large amount of ketones in your urine
- ✓ You are having trouble breathing
- ✓ You feel sleepy and can't think clearly (Have someone call your health care provider or take you to an emergency department.)

(Source: *Taking Charge of Your Diabetes - A Guide for Care*, p. 44, US Dept. of Health & Human Services, Public Health Service, Centers for Disease Control & Prevention)



## What is diabetes?

Almost every one of us knows someone who has diabetes. An estimated 16 million people in the United States have diabetes mellitus — a serious, lifelong condition. About half of these people do not know they have diabetes. Each year, about 650,000 people are diagnosed with diabetes.

Diabetes is a disorder of metabolism — the process by which our bodies use digested food for growth and energy. Most of the food we eat is changed into a simple sugar called glucose. Glucose is the main source of fuel for the body.

After digestion, the glucose passes into our bloodstream where it is available for body cells to use for growth and energy. For the glucose to get into the cells, insulin must be present. Insulin is a hormone produced by the pancreas, a large gland behind the stomach.

When we eat, the pancreas is supposed to automatically produce the right amount of insulin to move the glucose out of blood into our cells. In people with diabetes, however, the pancreas either produces little or no insulin, or the body cells do not respond to the insulin that is produced. As a result, glucose builds up in the blood, overflows into the urine, and passes out of the body. Thus, the body loses its main source of fuel, even though the blood contains large amounts of glucose.

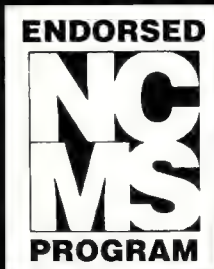
(Source: *Diabetes Overview*, National Diabetes Information Clearinghouse, National Institute of Diabetes and Digestive and Kidney Disease, NIH) ☐

## Records for Sick Days

How often	Question	Answer			
Every day	How much do you weigh today?	_____ pounds			
Every evening	How much did you drink today?	_____ glasses			
Every morning and every evening	What is your temperature?	_____ A.M. _____ P.M.			
Every 4 hours or before every meal	How much diabetes medicine did you take?	Time	Dose	Time	Dose
		_____	_____	_____	_____
		_____	_____	_____	_____
		_____	_____	_____	_____
Every 4 hours or before every meal	What is your blood sugar?	Time	Blood sugar	Time	Blood sugar
		_____	_____	_____	_____
		_____	_____	_____	_____
		_____	_____	_____	_____
Every 4 hours or each time you pass urine	What are your urine ketones?	Time	Ketones	Time	Ketones
		_____	_____	_____	_____
		_____	_____	_____	_____
		_____	_____	_____	_____
Every 4 to 6 hours	How are you breathing?	Time	Condition	Time	Condition
		_____	_____	_____	_____
		_____	_____	_____	_____
		_____	_____	_____	_____

(Source: *Taking Charge of Your Diabetes - A Guide for Care*, US Dept. of Health & Human Services, Public Health Service, Centers for Disease Control & Prevention)

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# Opportunities for Cooperation

## A Dialogue with the Saratov Medical University, Russia

Michael Gill, PhD, MSIV, Michael Simmons, MD, James W. Lea, PhD, and Gary D. Bos, MD

In the late 1980s the Sister Cities organization in Chapel Hill, in an effort to foster better relations between the peoples of the United States and the Soviet Union, began searching for a sister city in Russia. In 1990, the city of Saratov was identified, based on similarities between the universities in the two cities. The initial dialogue eventually led to the establishment of formal relations between the two cities in 1992. Since then, there have been a number of cultural and business exchanges under the aegis of the Sister Cities organization. Recently, these contacts have broadened to include the medical community.

The first medical connection between Saratov and the University of North Carolina (UNC) Medical Center occurred in summer 1994, when Ilya Bondurenko, a 14-year-old from Saratov, arrived in Chapel Hill. Several months earlier, Ilya had been diagnosed with osteosarcoma of the proximal fibula. Unfortunately, due to widespread shortages of chemotherapeutic agents in Russia, his long-term prognosis was poor, and he faced probable loss of his leg. Through the efforts of relatives in North Carolina, arrangements were made for chemotherapy and subsequent limb-sparing surgery at UNC Hospitals. During the months of treatment in Chapel Hill, the Sister Cities committee actively rallied support for Ilya and his mother. The committee also stimulated the medical school to explore possible relations with the medical school in Saratov.

### Saratov and Its Medical School

Saratov is a city of approximately one million people located about 500 miles southeast of Moscow along the banks of the Volga River. Established over 400 years ago, this port town flourished as a major center of trade between Western Russia

and the Orient. In the late 19th century, an edict of Czar Nicholas II led to the simultaneous founding of a university and medical school; construction began in the early 1900s and the first medical students graduated just before the Bolshevik Revolution. From a single university clinic, the Saratov Medical University (SMU) has now expanded to include an extensive series of clinics on the university campus, and teaching facilities at several major hospitals and specialty clinics throughout the city.

In October 1995, a delegation from UNC visited SMU and its affiliated hospitals and clinics for the purposes of establishing a medical student exchange program and exploring interinstitutional research and cooperation. The following article is a brief description of the Russian medical system and of the opportunities for exchange that have already grown from the first visit.

### The Russian Medical System

Most Americans have preconceptions about abysmal conditions, primitive equipment, and low standards of care in the provincial hospitals of post-communist Russia. The initial impression of the First City Hospital in Saratov would seem to confirm these stereotypes. Yet beyond the crumbling plaster and cold dark stairwells we found a medical system that functioned with a surprisingly high level of knowledge and expertise.

There were apparent contradictions in every hospital and clinic we visited. In the corridors, doctors and patients alike smoked cigarettes, but the surgical suites were spotless, with the smell of bleach lingering in the air. X-rays were taken with antiquated equipment and the films developed by hand, but were of diagnostic quality nevertheless. To our surprise, laparoscopic cholecystectomies were performed with the same instruments used in American surgical suites. But many instruments that we consider disposable are reused.

Throughout Russia, there is a terrible shortage of hospital beds. In Saratov, we saw 10 or more patients in one room and

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occasionally on beds in the corridors. There were usually many relatives present, often having come great distances from outlying provinces. In addition to providing psychosocial support, families play an integral role in the daily care of their loved ones, changing bed pans, bandages, and linens. Because of the disproportionately low nurse-to-patient ratio, this practice is an unavoidable necessity. The lack of technology, often leading to long hospital stays, compounds the problem.

Chronically besieged by shortages of supplies and lack of funds, doctors in Russia have become highly innovative and cost-effective. Until five years ago, Saratov was a closed city, and there was little communication with the outside world. However, the ingenuity that once went into the production of Russian military apparatus was and is still being applied to health care. As a group, Russian physicians are very clever and intelligent, and strongly motivated to do more for their patients.

During the communist era, the Soviet health care system was touted as completely egalitarian, providing free comprehensive health care for all citizens. In reality, the system deviated far from this ideal. It developed into a set of stratified and hierarchical institutions, with the best facilities reserved for the political elite. Significant variations in quality and accessibility existed on the basis of geography. In major cities, large polyclinics provided primary care, referring patients to local hospitals and specialists when necessary. In sharp contrast, provincial cities often had primitive hospitals. Rural health care was usually provided by poorly trained physician assistants in facilities that might lack even running water.

With the collapse of the Soviet system, much of the country's infrastructure underwent monumental changes. In a series of landmark reforms passed in 1993, the health care system was decentralized, and responsibility for the development of a health insurance system was placed on regional authorities. For the first time, patient rights were officially acknowledged, including the rights of patients to be informed about their condition, to accept or refuse treatment, and to participate in experimental protocols.<sup>1</sup>

The reforms of 1993 created an autonomous regulatory agency to establish contracts with clinics and hospitals for the primary care needs of the constituency. This agency is funded through compulsory insurance premiums paid by employers and contributions from the state for the unemployed. The reforms also encouraged the development of a parallel system of voluntary supplemental insurance offered by private companies to foster efficiency through the forces of market competition.<sup>2</sup> There are already reports of self-financing polyclinics in progressive cities such as St. Petersburg. These offer superior quality services to a predominantly pay-out-of-pocket wealthy clientele.<sup>3</sup>

Change was apparent even in the regional hospitals of Saratov where revenues from private clinics have allowed the purchase of sophisticated new equipment to improve efficiency and increase output in some specialties. Physicians' salaries have also benefited from the reforms. During the communist regime, general practitioners earned about as much as a com-

mon laborer, but private clinics and the new insurance system are improving this situation.

## Medical Education in Russia

Medical education in Russia lasts for six years and begins after completion of secondary school (about equivalent to our first year of college). For two years, the medical curriculum focuses on the natural sciences and basic humanities.

The third and fourth years correspond roughly to the first and second years of American medical schools, concentrating on basic sciences, medical ethics, and social medicine. The development of clinical skills begins in classes that focus on typical clinical problems encountered in surgery, internal medicine, and radiology. Each course is organized around a morning lecture, followed immediately by rounds on patients who illustrate the particular problem discussed that day. On the day of our visit to a surgery class, a small group of students heard a lecture on hernias and then went to see patients with incisional, inguinal, and femoral hernias. On rounds, an attending made a brief presentation of the patient, then instructed students in techniques of physical examination. Students were challenged to ask focused questions that might confirm the diagnosis and were asked to present a reasonable differential diagnosis for each patient. Each case was discussed in relation to treatment options and subsequent follow-up.

The syllabus for this course covers a wide range of common problems in each specialty area, and the staff was quick to point out that they have no problems locating at least one patient in the clinics to serve as a teaching case. The teaching system has a large inpatient population to draw from, and takes advantage of this to integrate traditional didactic lectures with case-based learning, reinforcing book knowledge with real life scenarios. This approach is now coming into favor in American medical schools.

The fifth- and sixth-year curricula in Russia closely resemble the clinical years in American medical schools. Students are responsible for following patients on their service but also have lectures on selected topics each day. Students following patients with the sort of problems discussed in the day's lecture must read up on all aspects of the disease and present the patients on teaching rounds. Fifth-year students rotate through the various major medical disciplines, and sixth-year students rotate through several subspecialties. In general, students in Russia have fewer hands-on patient care activities, and receive more direct instruction from faculty rather than house staff.

## Development of a Relationship with SMU

The visit of the UNC delegation had two goals: 1) to invite a medical student from Saratov to take a rotation at UNC; and 2) to establish a dialogue between the two medical schools that would foster interinstitutional cooperation in research and



clinical training. The enthusiasm we encountered at SMU was very encouraging and greatly facilitated discussion of future plans. Our short visit led to offers of collaboration from many of the faculty at SMU. We are working to arrange connections between faculty of the two institutions in clinical and research areas.

In April 1996, Victor Bogatov, a fifth-year medical student at SMU, began a two-month clerkship on the UNC orthopaedic service. His knowledge base was equal or superior to American counterparts at corresponding third-year level; he had less surgical and ward experience, but was able to catch up quickly. Victor found the vigorous pace of an American medical student a challenge, but fortunately, SMU has a strong program in foreign languages and Victor was able to extend his knowledge of English to the medical setting.

UNC has committed to accepting one student a year from SMU for a two-month visit. SMU, in turn, has invited a UNC student to come to Saratov. SMU already has a strong program in medical Russian, since they receive students from many other countries. An American student with a basic knowledge of Russian could function well after a few weeks of intensive language training in Saratov.

The second goal of our trip was to foster joint research projects, seminars, and exchange of medical personnel between the two universities. One of the most exciting aspects of the visit was to discover the markedly different regional epidemiologies and the unique ways in which certain disorders are treated. As an example, for six months there has been an unusual outbreak of diphtheria in rural Saratov; plasmapheresis has been used with good success to treat this. Another example is the substantial number of patients with a wide array of problems attributed to radiation exposure from the Chernobyl nuclear plant accident. Visits with clinicians and researchers from SMU can establish relationships that will permit information exchange by interested groups on both sides. The possibilities of applying our technology to disease processes which are rare in the US is exciting.

The process of exchange and collaboration was further aided by the visit of Rector Kirichuk and three SMU professors to UNC last February. They came to learn about medical education and health care financing in the US. They also visited various laboratories and physicians engaged in clinical and laboratory research to establish collaborative studies.

The Russian guests began a discussion about setting up a combined Russian-American hospital service in Saratov. Such a service is possible in Russia because the Rector has the ability to license physicians. A group of patients with diseases of interest to visiting clinicians could be brought to the facility for treatment by the combined faculties. Research opportunities could be arranged. If this venture is to succeed, funds would

need to be solicited from outside agencies to build a hospital wing or freestanding building to house the service. The discussions led to the signing of an agreement to work toward the establishment of such a service.

Further broadening contacts between the two universities, a nine-member delegation from UNC visited Saratov in September to take part in a joint conference on health care reform. The delegation consisted of clinicians as well as representatives from the UNC School of Public Health and UNC Hospitals. Concepts such as managed care were new to the Russians, yet both sides shared similar problems including issues surrounding primary care, rural health, and the costs and quality of medical education.

Following the conference, one of the delegates (Dr. Gill) remained in Saratov as the first UNC medical student to work in a Russian hospital. His month-long rotation in internal medicine and pediatric infectious disease afforded not only a better understanding of the Russian medical system, but a glimpse into pathologies not frequently encountered in the United States, such as diphtheria and hemolytic uremic syndrome.

Several other exchanges are currently being organized. In March, the medical school and the School of Public Health will host a conference on health care issues, with 20 doctors from Saratov attending. Early this year, UNC expects to receive multiple junior faculty from SMU on various clinical services and in research laboratories. A UNC family practice professor is expected to spend a month in Saratov helping to develop a primary care network that can be implemented in the Saratov region.

Continued exchanges with Saratov will require significant manpower. We hope that the effort will extend beyond UNC faculty, but wish to keep the service staffed with physicians from North Carolina. Faculty from any of the state's medical schools, as well as doctors in private practice who want to participate should contact Dr. Bos at 919/966-7130 (e-mail: gdbos@med.unc.edu).

## Conclusion

Our first contact with SMU was highly favorable. We are confident that it will be possible to establish clinical and research exchange. The fact that SMU is set in a recently opened city and has a knowledgeable medical faculty may explain the ease of developing a relationship without the request for funds that often hampers such efforts. We found the attitude refreshing, especially in the present milieu of declining health care budgets in the US. We believe that such an attitude is the key to establishing a long-term relationship with benefits for all. □

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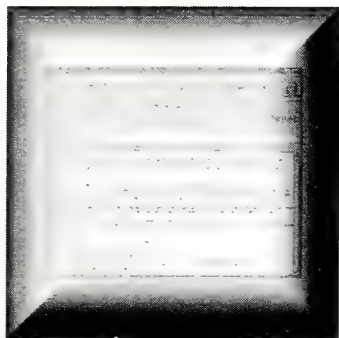
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# Locked and Loaded

## Roger Castle's Gulf War Syndrome

Dennis A. Greene, MD

**Author's note:** Nearly six years ago, my colleagues and I were preparing to leave the Arabian peninsula and return to our families, friends, and practices after having given 180 days of service to Operation Desert Shield and Desert Storm. Most of the people in my group were reservists, like me. Many were North Carolinians.

I wrote this story about a somewhat reluctant physician-soldier, who found himself caught up in the events. It is fiction, but the events described might have happened. Memories fade. I dedicate this narrative to the many men and women who have served, and continue to serve, their country.

Gently shivering, he lay on his back, head resting on his blanket-roll, squeezed among his buddies on the hard tarmac, looking at the brilliant stars in the cloudless night sky. He tried to shield himself from the cold dry wind blowing across the desert to the sea. "We will board the plane at oh-dark-thirty," the colonel had announced at the evening formation. "Try to get some sleep; it's gonna be a long night."

At one o'clock in the morning, they had been awakened and brought to the airstrip, passing for the last time the heavily fortified checkpoint that, for three months, had separated them from the outside world. Now, while medical equipment and personal gear were loaded onto the 747, the company had no place to sit. They lay down on the runway apron to keep warm, each with private thoughts and silent memories of the half-year coming to its end.

The 411th Evacuation Hospital, from Buffalo, New York, was one of 10 Army Reserve hospitals that had been mobilized and sent to the Arabian peninsula in November 1990, three months after Saddam Hussein moved his Republican Guards and irregulars across the border and occupied the oil-rich sheikdom of Kuwait. The American President, himself a Texas oilman, was outraged. "This aggression will not stand!" he said on the evening news. He assembled a coalition of 30 American, Middle Eastern, and European nations to confront the stubborn Saddam. When Saddam would not budge, history was made in January 1991: a massive military operation that bombed the Iraqi Army for 38 days and nights, then moved tens of thou-

### Glossary of terms

LTC, MC, USAR: Lieutenant Colonel, Medical Corps,  
US Army Reserve  
NAAD: National Army Medical Department  
Augmentation Detachment  
SHAPE: Supreme Headquarters, Allied  
Personnel, Europe

sands of soldiers, Bradley fighting vehicles, and tanks from Saudi Arabia, re-taking Kuwait in just four days. The clean-up took another month, then the troops were given orders to go home.

For Roger Castle, MD, LTC, MC, USAR, life had been routine until the President called up the Reserves. Roger, Chief of Radiology for the 411th, was not a weekend warrior, not one of those citizen-soldiers seen once a month driving convoys of olive-drab vehicles to fulfil their commitment to the Army Reserve or National Guard. Yes, he was in the Reserves, but as far-removed as possible. As a radiologist, one of the more underrepresented medical specialties in the Army, he had given his time, but no more than was required, and he had been allowed a good deal of flexibility in arranging his duty time, so that his personal life would not be disrupted. "Lucky to have me," he thought. The Armed Services needed Reserve medical personnel. There simply weren't enough doctors and nurses on active duty to support the far-flung military community, especially in times of crisis.

He had been on active duty once before, in 1973-1975. That was very different. He had been drafted out of high school, but

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granted deferment through college, medical school, and radiology residency at Northwestern. Those were Vietnam War years, but the Army sent him to Germany, as radiologist at the hospital in Würzburg. He rose to major, but he hated Army bureaucracy, hated spinning his wheels. "Enough of this," he thought. "I'm going back to the world. I have a career to get started." He resigned his Reserve commission. He put his uniforms in a box in the attic. He moved to Carville, North Carolina, and started a radiology practice that expanded steadily as the hospital grew. The years went by. He almost forgot about his military tour.

Roger hadn't figured on a mid-life crisis. After 15 years in harness, he was a little bored. Everything seemed predictable. He practiced full-time at the hospital in Carville; he was active in the local and state medical societies; he was well-known in the community. The Radiology Department grew to accommodate two associates and even residents from the University in Chapel Hill. Maybe he was a little burned out.

The hospital at Fort Bedford needed a part-time radiologist. They were small and needed someone with experience to develop the department. It was just 30 minutes away. Why not go back into the Reserves? There might be some benefits, and besides, wasn't it time to "give something back" for his years of privilege? That was two years ago. They made him a lieutenant colonel. If he stayed until he retired, he would be a full "bird" colonel. He had to go to Fort Bedford two afternoons a month, but he enjoyed the work with young soldiers, the bonding, the Army's emphasis on physical fitness, the teaching of the younger medical officers and staff.

He planned to spend his required two weeks of active duty at a different place every year, in Europe, if possible. In 1989, he went to the SHAPE hospital in Mons, Belgium; in 1990 he went to Heidelberg, to US Army Headquarters; next year was to be Italy. The "fun" stopped two days before Thanksgiving 1990, in his office in the radiology suite, at 2:45 in the afternoon. "Sir, this is Spec4 Hammer from the NAAD. We are mobilizing, sir, and you are to report to your mobe site no later than oh-nine-hundred Saturday morning. That is an order from General Thomas. Sorry, sir, but all Evacuation Hospitals are getting called up."

"What? Wait a minute, Specialist Hammer, I can't just leave everything, are you sure about this?" Roger was beginning to sweat. He sat down hard.

"Sir, you've been assigned to the 411th Evacuation Hospital out of Buffalo. HQ's pulled you from your parent unit because the 411th needs a radiologist. Their guy is nondeployable. Bad heart or something. We're doing a lot of mixing and matching down here, getting these units up to strength. It's been a real Charlie Foxtrot, if you get my drift. Oh, by the way, you need to go to Bragg."

Fort Bragg was three hours away. Roger had been there before, to the big Womack Army Hospital for conferences, to teach radiology residents, to read an x-ray or two. It was a small part of his Reserve duty, but not a part he particularly liked, being too close to what he did all day at home. All the same, he

enjoyed watching the maneuvers of the 82nd Airborne and the Special Forces, who had made Fort Bragg famous.

"What are we going to do, fill in at Womack until the regular Army guys get back from Saudi?" Roger muttered. "Don't know, sir. Just get there and you'll get orders." The soldier from NAAD clicked off. The National Army Medical Department Augmentation Detachment, located at Fort Gillem in suburban Atlanta, was Roger's administrative headquarters. To Roger it was just an "800 number;" he called them; they called him, usually about trivial things, like retirement points, courses, forms to fill out. He had never seen the place, nor they him. He wondered if the soldiers he spoke to looked the way they sounded, or vice versa, like Specialist Fourth Class Hammer, the NAAD clerk. "Who the hell is Spec4 Hammer? Jesus, wake up! What the hell am I going to tell Laura?"

Two days before Thanksgiving! He had until Saturday, Friday really, to rearrange his life. "Can they really do this to me?" Well, Vijay and Ken, his two partners, would just have to handle the practice for a while. They were all pumped up over Desert Shield anyway. The media had really got their attention. To Roger it had always been odd how often people who had never been in the military were much more hawkish than he, much more willing to send in the troops. Ken, six years younger, had been a flower child in Berkeley during Vietnam. Vijay was probably still in medical school in India back then. Well, it's not the '60s anymore.

Roger got on the phone to Laura: "I can't believe this, but I've been activated! I don't know how long, maybe a few months, maybe six months, I don't know! Look, I'll be home early and we'll talk this out, but I've got to find Vee and Ken!" Christ! There won't be any money coming in; what about the mortgage, the insurance?

Vijay and Ken were in the back office, having coffee, when Roger reached them. They sat for a while, silent, stunned. Vijay spoke first. "Rog, this is bloody *awful*, you know. But, by golly, what did you expect, anyway? Hey, I think I speak for both Ken and me. We'll hold down the fort. Don't worry about us. Just stay as safe as you can. Hell, you'll probably be a general by the time you get back!" Ken nodded, then softly and slowly added, "We'll make sure Laura and the kids are okay. Are you going to be all right as far as money is concerned? Your accounts receivable are only going to last a few months, you know. Maybe we can take out a loan or something." Ken's calculator mind was kicking into high gear, as usual in times of crisis.

"Look," Roger said, "I really don't have much time to deal with this, so I'll just have to see what they're going to do with me and play it by ear for a while."

A dozen phone calls later, he was at home. He had talked to the bank, the accountant, the hospital staff secretary, the medical school liaison, and left a message for the Rotary Club co-chair: "Won't be at the meeting next week, or the next. Carry on without me." Everyone seemed supportive and understanding. Hope it lasts. Damn! What a mess! What a shock!

He remembered the next few days as a blur. Laura's brave smile, her eyes betraying worry—or was it anger? Timmy and



Terry, the twins, just starting out in the new school, trying to make new friends, having a tough time. "Bye, Daddy, we love you," they waved as he turned and slowly walked down the jetway for the flight to Texas. Not to Fort Bragg. He had been reassigned to a training unit at Fort Sam Houston. He was one of the older ones this time around, his gray hairs earned. "I'm a father figure," he thought. "That's all I need."

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"Modified boot camp. Learn the tasks. Go or no go, simple as that. Qualify with pistol, with rifle....All of this seemed to be happening to someone else. He was a radiologist, for Pete's sake."

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The schedule: up before six, work all day at military and medical tasks, fall into bed at night. Hours and hours of filling out forms: for pay, life insurance, power of attorney, medical records, personnel records. Standing in lines, lots of lines. Lots of marching. Basic soldiering, they call it. Modified boot camp. Learn the tasks. Go or no go, simple as that. Qualify with pistol, with rifle. Qualify with chemical protective suit. It can save your life. All of this seemed to be happening to someone else. He was a radiologist, for Pete's sake.

Roger felt isolated, cut off from his life. He knew he would be transferred after three weeks, but not where he was going. Laura and the boys flew to San Antonio for a day, but he had only a few hours with them, at dinner. The training group was called for a late briefing. "How thin you look," Laura said as they parted.

Message from Specialist Hammer: "Report at once to Aberdeen Proving Ground, Maryland. The 411th Evac Hospital is mobilizing and will be ordered to Saudi Arabia."

They were housed in ancient barracks that had been hastily reconditioned to make them habitable, at least by Army standards. Roger bunked with 30 men, enlisted and officer alike, in one long, narrow room. He had a bed, a locker, a little desk. The only telephone was a pay phone on a pole between two of the buildings. By standing in line for an hour, he could call home.

Because of security issues and training schedules, they were not allowed to leave the post, to have visitors, or to disclose their location to anyone, although it was no secret where they were. "They're out there. This is real," said the colonel, a stumpy urologist with a slight limp, warning of a perceived threat to their safety. They could use the gym and track, but not the Officers' Club. They would march in formation to the mess hall. Alcohol was forbidden, by order of the general staff. They were going to war. They were going to be ready. "Locked and loaded, leaning forward in the foxhole," was how the trainer put it, "good to go."

In Aberdeen that winter, it either rained or it snowed. Cold and wet, they continued their training. Roger was miserable. He felt imprisoned. His barracks-mate, an ambulance driver named

Mario, said, "Geez, Doc, this is worse than jail. I've *been* in jail! We had our own cell, three meals a day, TV; our wives could visit; we had a telephone. It was much better than this!"

How could the Army, he wondered, send him to a hostile area? Weren't there plenty of regular Army full-timers to take overseas duty? Weren't the reservists supposed to backfill at places like Walter Reed and Womack? Are we sending a message to Saddam? Is that it? Watch out, Saddam! Roger Castle is coming! I bet he's quaking in his boots.

Christmas, and a few days off, finally. He went home, but nearly wished he hadn't. Laura was exhausted. The boys were acting out, obviously unhappy. On their last night together they sat close and tried to dedicate themselves to making the best of the situation. "After all, think of all the single moms and dads, the students pulled away from a whole year's work, who are so much worse off than we are. We'll get through this, that's all."

On New Year's Day, the colonel called a formation. "We've received our orders to deploy overseas. We will leave in 48 hours. You will be given our destination later. Dismissed." The 411th spent the next day and night preparing. "Finally, something to do," Roger thought. Pack up a hospital. Equipment, vehicles, bandages, solutions, tables, chairs, you-name-it. Beans, bullets, and bandages, they said. Most of it would go right on the plane with them. The rest would arrive later. But where, exactly?

When the buses came, it was snowing hard. Oh-dark-thirty, once again. Everything happens at the "dismal time." It was a long slow trip to McGuire AFB, in New Jersey. The bus convoy was directed to an empty terminal building. Air Force personnel materialized, and within an hour the company was being out-processed and readied for the next stage of their journey. They were in full battle dress, the 400 personnel of an Evacuation Hospital company. Doctors, nurses, technicians, clerks, drivers, cooks, repair personnel, security, communications, supply. In the darkness, they could have resembled any of the thousands of soldiers who had already passed through.

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"Roger could sleep almost anywhere, even amid the constant noise and activity of his bunk-room mates. He dreamed about weapons under seats."

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As they boarded the airplane, they carried their M-16s; the officers strapped on their .45s. Their knapsacks weighed 60 pounds, including the sleeping bag. Attached to their web-gear were a flashlight, first-aid kit, and two canteens. They marched in formation to the plane. "Hey, you guys look tough," said one of the Air Force noncoms helping them load. "No shit. We're a hospital," someone replied. Roger scribbled a note to Laura: "We're leaving. I love you more than you know." He gave it to one of the attendants. "Don't worry, I'll send it to her," she promised.

"Welcome to Tower Air Flight 999, Boeing 747 Service to Saudi Arabia. Please stow your weapons under your seats, muzzles pointed toward the aisles," said the intercom. They took off into the dark sky. Roger fell asleep almost immediately. He had learned to cover his eyes with one of those black eyeshades he used to see in old movies and plug his ears with Army-issue earplugs. He could sleep almost anywhere, even amid the constant noise and activity of his bunk-room mates. He dreamed about weapons under seats.

Four hundred soldiers traveling together did not take long to eat up all the food and fill up all the toilets. It was hard to move about the airplane. The aisles were filled with gear or sleeping bodies. Roger amused himself listening to Arabic language tapes and playing pinochle with his mates. He fell into the sleep-wake pattern of boredom and fatigue.

"Doc, sir, wake up! You gotta see this, sir!" A corpsman was snapping pictures through the porthole on Roger's left. It must have been late afternoon, local time, because from 38,000 feet he could clearly see the long shadows pointing eastward from the Great Pyramids of Cheops and Chefren, as they flew directly over Giza. Was that the Sphinx down there? It was one of the most beautiful things Roger had ever seen. The Nile stretched north and south, with its great bulge near the ancient cataracts, like a page from one of his childhood storybooks. Then they were over the desert and the Red Sea. As the sun set they began their descent somewhere over Saudi Arabia.

The camp lay at the north end of a runway. The engineers had bulldozed the sand flat and then spread gravel over a one-fourth square mile area surrounded by a chain-link fence and razor-wire. There were a few collapsible modular buildings and a lot of tents occupied by Air Force personnel who flew aerial refueling missions over the Persian Gulf. Some of the crews came from North Carolina's Pope Air Force Base. "Small world," Roger thought.

The hospital was going to be a hybrid. The Air Force was bringing in its own staff, essentially matching the 411th. The Air Force commander, a tall, good-looking general surgeon, stood on a table. Our colonel hopped up next to him. "We're going to be the first combined Army and Air Force hospital. We want you to ignore the insignia on your uniforms. From now on, you are one service. No rivalry, no competition, no rank. We're here to do a job and we are going to cooperate with each other fully." Actually, mused Roger, lying with a stiff back on the cold asphalt, it *had* worked pretty well, except for softball and touch football games.

When completed, the hospital had a capacity of 1,000 beds. They were far enough from the battlefield to be safe from SCUD missiles, but close enough to provide rapidly accessible medical care. The modular buildings and tents connected side-to-side or end-to-end, included four modular operating rooms, all well-equipped. And excellent anesthesia. The x-ray equipment was a little outdated, and Roger would have loved a CT scanner, but he was confident that this evacuation hospital could fulfill its mission, and then some.

That was three months ago. It was hard to remember all that they had done since. They trained for what they hoped would never happen: mass casualties; planeloads of wounded, nerve-gassed soldiers, landing on the runway and taxiing right up to the hospital's open door. Boy, the luck! The most serious casualty was a young woman soldier with a ruptured ectopic. Friendly fire, they called it. A few troopers with vague nausea and vomiting, aches and pains, rashes that no-one could explain. "Lots of stories; so many people dislocated just like me. Someday I'll have to write about it."

"Three months ago," Roger thought, "we landed in a dark spot in a desert with nothing but an airstrip. We built a hospital out of tents and containers. And the best thing is that we never needed it. We trained and trained, but never filled our beds. We saw war on CNN. I think we were ready, but I guess we'll never really know. Now we are leaving and all this will disappear. The hospital will go back in its box and the airstrip will be left to the sand. Six months from now, if you flew over this place, you would see no tents, no razor wire, nothing but desert."

"Okay, we're ready to go," the colonel announced. "The pilot said to get a move on or it'll get too warm for us to take off with this load." "No problem-o," said Roger, as he wearily got to his feet, stretched, picked up his gear and walked to the stairway, his boots crunching on the sand. □

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# My Encounter With Cancer

## One Woman's Battle with Cancer and Today's Health System

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Teena Vaughn-D'Annibale

She touched me, and I knew.

Cancer!

Her name was Diane, I think. A sonographer. I lay there with my head tipped uncomfortably back so my neck was exposed to the gooey slime and the cold instrument. I knew the sonogram did not look good. Every time she touched my arm I felt—

Cancer.

A shy smile—

Cancer.

A brush of my hair—

Cancer.

A quiet, "Everything looks good. You're all done. Here let me get that goo off of your neck."—

Cancer!

She glanced down, then back to me; our eyes met and I knew—

Cancer.

She said, "Have a great day," and then I was sure.—

Cancer.

The doctors kept saying: "It's growing too fast to be cancer." "You're too young. Your age is working for you." "The chances of cancer in cases like this are 1 in 100." Yet, I knew when I looked in Diane's caring eyes—

Cancer!

I walked out to the car, where the world went on as if nothing was different at all. I watched a little girl and her mom waiting for a city bus. The girl was fussing with a beautiful green, potted plant, picking the leaves off behind her mother's back. The mother chatted with an older man on a cane about the buses always running late. "What do they think? That we have all the time in the world?" she asked in a hostile tone.

I turned away. "All the time in the world"—

Cancer.

The steps to the parking lot were the awkward sort where two steps are two long and one too short. You have to take giant steps or baby steps. I wonder what sadistic person designed steps like this and why they were everywhere. Baby steps or giant steps?—

Cancer.

At the car I just sat in the heat, sweat running down the back of my neck, gripping the steering wheel, knowing—

Cancer!

Thinking, "What am I doing? The doctors all say it is not cancer. Why am I being so negative and melodramatic? It's not cancer." A horn blew. Was I moving or staying? They want my parking space—MY SPACE—

CANCER!

On the drive home I began to cry: scared; mad at being selfish and stupid; hurt that this was happening to me; wondering what I was supposed to learn from this life-lesson God had so graciously dropped in my lap. Yet, despite all the uncertainty, I felt a strength that I knew would get me through to the end. At the red light tears streamed down my face, but when somehow I got home, into the driveway, I decided not tell Peter. In my heart, though, I knew I eventually would. We share everything. We are soulmates. He would know the minute he looked in my heart. I told Peter.

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The days became a week. I thought—Cancer—every minute. I tried to forget but I wanted someone, someone official, to back me up, to tell me, I was right—or even better—wrong! But those words never came. Instead, it was doctors, doctors, doctors. The doctors all said I did not fit the pattern for cancer, so not to worry. But "Go see the endocrinologist." Scary, painful tests, with no anesthetic. The doctors said there

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Ms. Vaughn-D'Annibale lives in Shippensburg, PA. At the time of this writing, she was a Wilmington resident.

were not enough cells to be conclusive. They sent the cells to someone who is even *more* of an expert. Well, now, there are not enough cells but... I'm leaning toward being "concerned." That's a nice way of saying—Cancer!—in my book.

On to the surgeon. Huge waiting room, curt receptionist, cool, calculating explanations and options.

"Just take it out, doc. I want it all out," I say. He agrees.

I go home and tell Pete and the kids, "It's nothing to worry about. The doctor says it's cut and dried," that "the likelihood of cancer is 1 in 100." They all breathe a sigh of relief. I think—Cancer.

Nothing to eat. Be there at 5 a.m. for preps. The alarm goes off. We dress. I put my hair up on top of my head, thinking, "It'll be out of the way." No makeup so they can see if you look pale—which you do because you are scared to death, but surprisingly calm because it's all about to be over—finally.

I cannot look at Peter. He looks so worried, so scared. I know he is wondering—"Cancer?"—but never says a word.

"Come on let's go," he says, "I love you, ya know." I know. I know that more than anything else I know in life. I'm so scared to lose him. I cling to his shirt and wish I could fuse my body right inside him so we were all one person. But it's too much pain to handle right now. I push him away—

Cancer.

It's dark and the headlights illuminate only the world in front of our car. That's good because that's about all I can handle right now. How has this all happened? I cannot believe it. I have never been sick my whole life.

"Fat and healthy," that's what Doc Frank and I always say. "Lose some weight and you'll be sickening." Yet, six months ago his face was strangely serious when he found a pea-sized nodule on my neck during a routine exam.

"Nothing to be *that* concerned about, but we need to address it." Doctor talk for—

Cancer?

The parking lot has a yellow-blue hue from the street lights. On the funny, sadistic stairway I choose to take baby steps today. Inside, paperwork and bracelets, intravenous feeding tubes, and "this will make you sleepy" medicine. But Peter's there so I'm pretty calm.

"It's time, Mrs. D'Annibale," and off we go—

Cancer?

We will soon know.

Peter kisses me at the door. I assure him I'll be okay. We part physically, but mentally he's right here with me, waiting in that cold, cold room. Waiting for the surgeon to drink his coffee (have two doc, I want you awake) and eat his doughnut, laugh with some nurses about a joke he heard the night before.—

Cancer.

Soon I'm whisked around 100 machines. I swear you have to be an Indy car driver to maneuver those stretchers around all the machines and the ashen-faced old men waiting for prostate

surgery. But we make it, and the anesthesiologist says, "Good morning. How are you today?"

I want to say, "How the hell do you think I am?"—

CANCER!

but instead I smile and say, "Hangin' in there." Which is a smart choice since this guy will have my life in his hands for the next five hours. Good night. Canczzzzzzzz!

"Honey, are you awake?" I say nothing. My mouth feels dry and there is a searing pain in my neck. People talk around my head, bustling. Intravenous bottles clank on poles, a chart is thrown on my legs. Someone shakes my arm, "Teena? Teena?" I look up and see a blurry, black-headed figure. "Hi, sweetie. It's Jeanie from Mary Kay. You did great!" I close my eyes without saying a word. My mouth is thick with cotton and the smell of anesthesia. I realize there is a tube in my nose. We move quickly down the hall, lights overhead a blur.

"Hey girl, how you been?" the person pushing me says to a woman waiting for the elevator.

Bump! Ow! Bump! Ow! The wheels click over the elevator entrance. I feel like I'm on a bungee cord that has been mistakenly tied around my neck. More lights and more race car-driver skills as we maneuver around food carts, people—some walking, others ashen-faced, like I, too, must be at this point.

We come to a room and everyone leaves except one nurse who arranges the IV on a pole and takes my vital signs. "Is there anything you need?"

I say, "No," because I cannot think of all the things *I do* need right now. Aren't they supposed to *know* what I need?

A squeeze on my hand and I open my eyes to see Peter. Oh, Peter. It hurts *so* much, I think, but all I can say is, "I love you."

"I love you, too," he says with a hard and long squeeze of my hand. I know I'm okay now. I sleep.

My eyes open to someone yelling for a bedpan. Peter is there and I feel a *lot* of pain.

"Peter, please tell them I need some pain medication. And my mouth is so dry." I whisper. He slips ice chips into my mouth and a tiny drop of water slides down my throat. I am sure this ice is laced with razor blades. Soon the nurse arrives with Demerol and 15 seconds after they inject it, I'm asleep. This sequence goes on for most of the day, and the immediate need for relief from pain has erased the word Cancer from my brain.

At one point Peter does tell me that they only took out half of my thyroid because the frozen section was clean, and with no goiter they did not feel the need to take the other half. He has a big smile on his face and a look of relief.

It was good to hear...but...in my heart I was rocked. I had been wrong. *It wasn't cancer.* It shook my very belief in myself. Yes, I was glad for the news, but I had been so *sure* it was cancer and now, it seemed, I could not even trust my feelings. I was confused; I felt as if had been dealt a blow almost as bad as cancer itself. My instincts have always been right. My intuition was one thing I could always count on. God had given me this



gift of knowing and He had never failed me before—good or bad. I felt abandoned and happy at the same time.

This time I did not tell Peter. I was shaken and embarrassed to have had such negative, melodramatic feelings, to be so cocky and sure that it was cancer. And now it was not. I was wrong, *wrong!* Hurray!

The other shoe soon came crashing down. I was sent home after a little more than 24 hours because of our HMO's rules. I endured the ride home, and tried to cope with my recovery amid all the "help" from my four wonderful children. They greeted me at the door. Hugs and kisses, except from Jamie who is a little scared about it all, so he kisses my hand. Smiles on their scared faces. I smile to reassure them, but I really need to lie down. I love them all so much. Amber, 13, does a lot of housework and tries to keep the need for me to scream at a minimum. But she is only a kid and so are the three younger ones; Kaitlyn, 8, James, 7, and his twin brother Christian. Just four days after my surgery, I drive them to see the whale movie, "Free Willy II." With a pillow propped behind my head, I am actually able to enjoy doing something normal for the first time in a long, long while. No cancer! What do ya think of that?!

Monday I wake to a ringing phone and Dr. T's nurse telling me he had to cancel my follow-up appointment due to emergency surgery. Well great! I had taken the day off from my at-home day care for the appointment. This was a pain in the neck (a phrase I use a lot lately, metaphorically and otherwise). But I just say to her, "I understand. Let my husband call and make the new appointment since he'll have to take off work to cover my day care while I go."

"Well, all we have is Wednesday at 2:30," she tells me in a miffed voice, obviously pissed that she has to reschedule Dr. T's whole day of appointments and wishing no one had a life outside of doctor's appointments so she could just whip through the whole list and then have the rest of the day off. But, I insist she call my husband. They decide on the following Monday, two weeks after my surgery.

Tuesday, my day care kids come back and I am thrilled to have something to do, to feel their hugs and kisses, to know I am truly missed by all. But as the week goes on the "C word" creeps back into my brain. The doc had sent my thyroid—the "specimen"—off to a lab to double check the hospital's findings of "not cancerous." "It must have been okay or they would've insisted I come in," I think to myself. No one calls. "Of course, it was okay or they would have called." By Friday I call, to ask that my records be sent to Doc Frank. On the phone I hear the nurse say, "The tests that we sent away *do* show cancer cells..." She keeps talking but I'm not listening anymore—Cancer cells! *Cancer cells!*

My whole being was rocked for a second time. I had doubted myself. I believed in modern medicine and it was wrong! A feeling of strength began to grow in me like I have never felt before. Like a rush of water from a fire hose, washing my whole body clean, renewing my faith in myself and my God. Isn't it strange that a negative result could have such a positive effect on me? But it was more important to me to be tuned into my soul and my God than not have a physical disease I knew I had the strength to fight. All of this knowledge flooded over me in a period of about five seconds. I heard a voice saying, "Monday at 2:00." I stood there for a long, long time after we hung up, wondering and knowing, all at the same time—why?

Monday's visit was a dichotomy. This time an angry Peter came, and we sat in the empty exam room saying things like, "They screwed up big time," and "We'll call lawyers when we get through with all of this" (which is a joke, because we're not the suing kind), and "Are you sure we should come back to this doctor? He did mess up the first time." But Doc Frank says he's the best and I trust Doc Frank because he's the one who's listened and believed in us. "I trust Doc Frank, not this guy."

We say all of these things, hyperbolizing and posturing for some position of power so we can face the battle: Us Against the Doctor. I cannot help think it is supposed to be the Doc-as-General, on our side against the illness as enemy. But this has all turned into a Vietnam, a place where we do not know the good guys from the bad

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"We...posture for some position of power so we can face the battle: Us Against the Doctor. (It) is supposed to be the Doc-as-General, on our side against the illness as enemy."

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and the only people we can trust are the fellow soldiers in our own platoon—me and Pete against the world of big, scary, all-powerful, all-knowing people who literally hold my life in their hands. They have the knowledge, authority, egotism, wealth, and an army of colleagues on their side. We, we have each other.

So, the surgeon comes in and goes over the pictures of my thyroid (their "*specimen*") and the cancer. He shows us little red dots on a Polaroid, which I assume has been taken through the lens of a microscope. It is so obvious to me and to Peter that I see the cancer on that picture even before he points it out. I wonder to myself, "How did the pathologist miss *that!*" If the pathologist had seen *that*, Dr. T would have taken my whole thyroid right there on the operating table, and I wouldn't be in this pickle. But how is a pathologist whose specialty is not thyroids suppose to see *that!* (I found out, accidentally, that the pathologist who inspected or read or diagnosed my "frozen section" while I lay open on the operating table was not a thyroid pathologist. Maybe he was in charge of brain tumors or something and did not know thyroid cancer from a piece of meat. The thyroid pathologist at the lab they sent it to saw the cancer and said, "It's spreading right on the specimen.") I, mother, writer, day care-provider, wife, look at the picture with the big red dots, and I, me, lowly me, see it in three seconds. So,



what's with this pathology guy? Did he drink enough coffee today or what?!

Peter asks questions about the operation; I continue to stare at the picture in disbelief. The doctor replies, "It's cut and dried." Peter seethes, "That is what you said the first time." The doctor does not say anything. What can he say? He is sorry, truly sorry. I am unmistakably sure about that. But if he internalizes every patient, how could he do his job efficiently? I understand that, too.

We ask to stay in the hospital longer than one day this time, explaining, "Last time was pretty hard, what with the four kids and no one to help." He looks surprised and says, "You have *four* kids?"

I say, "Yes, and no help. So, what do ya say? Can I stay more than one day?"

He agrees to let me stay. Meanwhile, I'm thinking that I know that this man has a wife and a daughter in her 20s who is to be married soon. I bothered to find this out about Dr. T who is going to slice open my neck. But he did not even know I had kids, much less four of them. In my book that is something a doctor should know before he sends you home with a neck full of stitches and a prescription for Percocet. It's no secret; there are ways to find out, without my having to volunteer the information. Maybe in casual conversation, the way Doc Frank learns about his patients. Doc Frank probably knows more about us than he needs to, but that lets him make medical decisions that are real-istic and *humanistic*. Why isn't Doctor T like that? I feel cheated.

The second, "total," thyroidectomy is pretty much the same as the first, except that I really do not have any thyroid left this time. The second specimen was not cancerous (my intuition and I concur, not that anyone asked). The surgery hurt a lot more, but I did get to stay in the hospital three days. There is radiation treatment in the month ahead. But the worst is over.

In retrospect, even with all the mixed signals, I have to marvel at the expertise and genius my doctors used to heal me. I thank God for them every day, and hope they are thanking God for me, too. Finally, I dedicate this journal to Dr. Frank Snyder—a wonderful doctor but, more importantly, a wonderful friend. □



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# Interval to Cancer Diagnosis Following "Negative" Transthoracic Fine Needle Aspiration Biopsy

Warden L. Woodard, III, MD, Michael J. Kelley, MD, William L. Betsill, Jr., MD, and Herman A. Godwin, Jr., MD

Transthoracic fine needle aspiration biopsy (TFNAB) under fluoroscopic or computed tomographic (CT) guidance can be used to evaluate suspected malignant lesions of the lung parenchyma, hilum, or mediastinum. As with any test, it is possible to determine the operating characteristics of TFNAB. These test characteristics include *sensitivity* (the true-positive rate or percentage of patients with the condition who have a positive test), *specificity* (the true-negative rate or percentage of patients without the condition who have a negative test), the *false-positive* rate (the percentage of patients with a positive test who do not have the condition) and the *false-negative* rate (the percentage of patients with a negative test who eventually turn out to have the condition).<sup>1</sup>

TFNAB has a sensitivity of 64%-98%<sup>2-15</sup> and a specificity of 92%-100%.<sup>4, 8,11,12,15</sup> False-positive results are usually less than 1%.<sup>2,4-8,10-12,16</sup> False-negative aspirations average about 11%,<sup>13</sup> but there are reports of false-negative rates over 30%.<sup>8,11,12,15,17</sup> Thus, while positive predictive value is very high (>98% of patients with a positive aspiration do have

cancer),<sup>4,8,15</sup> the predictive value of a negative test is in the range of 50%-85%.<sup>4,8,17</sup> Accuracy may be diminished when lesions are small and centrally located.<sup>2,10</sup> Best results are obtained when both the radiologist doing the procedure and the pathologist interpreting the biopsy are experienced.<sup>2,5,6,16</sup> The general rule regarding needle aspiration biopsies is that negative results do not exclude malignancy and that suspicious lesions should be evaluated further.

Accuracy and technical aspects of TFNAB have been extensively discussed, but little information exists about the length of time from a "negative" TFNAB to the diagnosis of malignancy in those cases where the TFNAB result was a false-negative. Since we perform many TFNABs at our large community teaching hospital, we have reviewed clinical outcomes of patients who had "negative" TFNABs. In addition to assessing the false-negative rate for diagnosis of malignancy, we determined the time interval from TFNAB to diagnosis in these patients.

## Methods

We obtained from the Departments of Radiology and Pathology a list of patients who had negative TFNAB performed between October 1986, and December 1990. All aspirations were per-

formed at Carolinas Medical Center in Charlotte using standard fine needle technique under fluoroscopic or CT guidance. Samples obtained by aspiration were stained using rapid Papanicolaou technique, and smears were reviewed immediately by a cytopathologist and radiologist. If no diagnosis could be made, aspiration was repeated unless there was a clinical contraindication (a second TFNAB at the same sitting was not considered a separate procedure). Cell blocks were reviewed on the day after the procedure and results were correlated with initial smears. The ordering physician was notified of the final diagnosis and, if negative, provided information concerning adequacy of sample. Bacterial, fungal, and mycobacterial cultures were performed when appropriate.

A total of 735 TFNABs were performed during the time period studied; 173 (23.5%) TFNABs in 173 patients were reported as negative for cancer. The 173 names were matched against names in the hospital's Tumor Registry, a cancer registry maintained according to standards of the American College of Surgeons. After review of abstracts of registry cases and available medical records, 27 of the 173 patients were found to have been diagnosed subsequently with primary or metastatic intrathoracic cancer. A search of the state Central Cancer Registry produced no additional cases. Ten of these 27 cases were excluded because

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records were inadequate for confirmation of cancer diagnosis in four, biopsies had been made by technique other than TFNAB (they were on the list by mistake) in three, there was a specific benign (not malignant) diagnosis in one, the TFNAB was actually positive (on the list by mistake) in one, and both a malignant and benign result were recorded on same day in one. Seventeen cases remained in whom cancer had been documented following "negative" TFNAB.

The cancer diagnosis was established cytologically or histologically in 14 cases: via repeat TFNAB in four; repeat TFNAB and thoracotomy in three; thoracotomy in one; bronchoscopy in four; and biopsy/aspiration from a nonpulmonary source in two cases. A clinical diagnosis of intrathoracic cancer (based on histologic proof, antedating TFNAB, of cancer at another site, and enlarging bilateral pulmonary masses considered by attending physicians to be metastases) was accepted in the three remaining cases.

Results

In general, the diagnostic performance of TFNAB was quite good. As shown in Table 1 (below), 562 of 735 (76%) biopsies confirmed the presence of cancer. In 173 (24%), the TFNAB result was not indicative of malignancy. In 31 (4%) of these cases, it was possible to make a specific benign diagnosis such as granuloma, hamartoma, abscess, tuberculosis, etc. In no instance where such a specific diagnosis was made was there subsequent revision to a malignant diagnosis. On the other hand, in 142 (19%) of the cases, cytopathology was not sufficient

to make a specific diagnosis, either benign or malignant.

In 17 cases (12% of the 142), the original diagnosis was subsequently revised to a malignant one. Table 2 (next page) shows details of the TFNAB results in these 17 false-negative cases, the subsequent studies used to establish a diagnosis, and the interval to and nature of the final diagnosis. A diagnosis of intrathoracic malignancy was established within two weeks in nine patients; in the other eight, the interval to correct diagnosis was five months or longer. Twelve patients had primary pulmonary neoplasms and five, metastatic. In seven cases, TFNAB samples were cellular but nondiagnostic; in 10, the cytologic sample was hypocellular or acellular (Table 3, page 59).

Of the eight patients whose interval to diagnosis was five months or longer, four had primary pulmonary neoplasms and four had recurrent or metastatic disease. Delays to diagnosis in patients with primary lung tumors were five months, five months, 12 months, and 24 months. Two patients of the four with metastatic disease underwent major nonthoracic cancer operations (total glossectomy, partial hepatectomy), which could have been avoided had pulmonary metastases been proven by TFNAB.

Discussion

Our false-negative rate of 9.8% is consistent with the average from the literature.<sup>13</sup> The causes of false-negative TFNAB have been well documented. Adequacy of sample depends on proper placement of needle and sufficient cellularity of speci-

men. Areas of necrosis, inflammation, or fibrosis in a tumor increase the chance of a negative result.<sup>2,16</sup> In addition, some tumors yield mucoid or hemorrhagic material, possibly decreasing accuracy.<sup>2</sup>

Malignancy can be confidently excluded if a specific benign diagnosis (hamartoma, granuloma, infarct, or infection) is made.<sup>3,9,16</sup> Such specific benign diagnoses can be made in 12%-70% of nonmalignant aspirates (the lower figure is generally felt to be more accurate).<sup>5,6,14,16,18</sup>

False-negative results are more likely when the pretest probability of malignancy is high.<sup>11</sup> Factors increasing the probability of malignancy include older age, a history of smoking, and absence of the lesion on prior radiographs. Younger patients, nonsmokers, travelers to areas of endemic infections, and immunosuppressed patients are more likely to have nonmalignant diagnoses such as infections or other inflammatory processes.

Certain strategies can help decrease the chance for false-negative results and the delayed diagnosis of malignancy. A cytopathologist should be available to perform immediate cytologic analysis.<sup>16,19</sup> If the cellularity of the sample is inadequate, TFNAB should be repeated immediately. It may be helpful to repeat TFNAB at a subsequent setting if the initial procedure is nondiagnostic since 35%-65% of repeat procedures reportedly lead to a correct diagnosis.<sup>3,9,16</sup> Repeat TFNAB was successful in seven of our patients; in four of these cases the interval was one week or less.

If repeat TFNAB is nondiagnostic and the clinical suspicion of malignancy is low, a conservative approach seems appropriate, especially in patients with impaired functional status who are poor surgical candidates. Patients should be monitored closely for radiographic change or worsening clinical status. Repeat radiographic evaluation two to three months after negative TFNAB has been suggested.<sup>2,3,5,16</sup> Of course, clinical and radiographic surveillance depend on patient compliance, which is not always achieved.

The incidence and causes of false-negative TFNAB are well known, but

Table 1. Transthoracic fine needle aspiration biopsies (TFNAB) in 735 patients

Initial TFNAB diagnosis	Number	Final diagnosis of cancer
Positive for cancer	562	*
Negative for cancer	173	17
specific benign diagnosis	31	0
indeterminate diagnosis	142	17

\* The 562 patients initially diagnosed with cancer by TFNAB were not systematically followed to determine whether any diagnosis was false-positive.



**Table 2. False-negative TFNAB: initial result, eventual diagnostic method, interval to diagnosis, and final diagnosis**

<b>Case</b>	<b>TFNAB result</b>	<b>Diagnostic method</b>	<b>Interval</b>	<b>Final diagnosis</b>
1	Macrophages, consistent with granuloma or pneumonitis	Repeat TFNAB	2 days	Consistent with adenocarcinoma
2	Intense inflammation and suspicious atypical cells	Repeat TFNAB	3 days	Squamous cell carcinoma
3	Intense acute inflammation	Thoracotomy	1 week	Bronchial adenoma, carcinoid type
4	Atypical cells, probably reactive	Bronchoscopy	1 week	Poorly differentiated adenocarcinoma
5	Numerous macrophages and a few atypical cells	Lumbar puncture	1 week	Metastatic adenocarcinoma, unknown primary; multiple pulmonary/brain metastases, carcinomatous meningitis
6	Few hemosiderin laden macrophages, cell block acellular	Repeat TFNAB and thoracotomy	1 week	Bronchioloalveolar carcinoma
7	Amorphous necrotic debris, mucus, and a few lymphocytes	Repeat TFNAB	1 week	Consistent with large cell undifferentiated carcinoma
8	Blood and macrophages, sample not representative	Bronchoscopy	1 week	Adenocarcinoma consistent with lung primary
9	Few atypical bronchial cells	Bronchoscopy	2 weeks	Atypical cells consistent with non-small cell carcinoma
10	Blood, fibrin, acellular	Repeat TFNAB and thoracotomy	5 months	Poorly differentiated adenocarcinoma consistent with lung origin
11	Muscle, fat, few inflammatory cells; inadequate	Repeat TFNAB and thoracotomy	5 months	Large cell undifferentiated carcinoma
12	Inflammatory cells	Clinical*	6 months	Pulmonary metastases from squamous cell carcinoma of oropharynx. Radical surgery after "negative" TFNAB.
13	Benign connective tissue and lung; cell block blood only	Clinical*	8 months	Lung/liver metastases from colon cancer. Right liver lobectomy after negative TFNAB.
14	Few reactive and degenerated cells; hypocellular	FNA supra-clavicular mass	1 year	Metastatic adenocarcinoma with squamous features
15	Few macrophages and benign respiratory cells, scanty sample	Clinical*	13 months	Recurrent bronchioloalveolar carcinoma
16	Benign changes consistent with granuloma or hamartoma	Repeat TFNAB	2 years	Adenocarcinoma
17	Blood; few clusters of atypical cells, insufficient for diagnosis	Bronchoscopy	4 years	Metastatic renal cell carcinoma

\*These patients had bilateral enlarging pulmonary lesions clinically consistent with recurrent or metastatic cancer. Each had a previous histologic diagnosis of malignancy.

**Table 3. Summary of 17 false-negative TFNAB**

<b>Interval to positive diagnosis</b>	
≤ 2 weeks	9
≥ 5 months	8
<b>Type of neoplasm</b>	
Primary bronchogenic cancer	12
Metastatic cancer	5
<b>Nature of "negative" sample</b>	
Cellular/nondiagnostic	7
Hypocellular/acellular	10

Wescott reported five false-negatives in his series of over 400 TFNAB; in two cases correct diagnosis was made "months" after the procedure, and in another, repeat TFNAB two years later revealed adenocarcinoma.<sup>9</sup> To our knowledge our report is the first to fully detail the interval to diagnosis in patients with false-negative TFNAB. Delayed diagnosis may compromise the outcome of treatment and increase malpractice liability.<sup>20</sup> In addition, failure to establish the presence of pulmonary metastases from head and neck, colon, or other cancers may lead to unnecessary operations, as in two of our patients.

What should physicians do when they receive a "negative" (nondiagnostic) TFNAB report? Calhoun and colleagues, in a review of 38 false-negative TFNAB, found no clinical, cytologic, or radiologic criteria that could define patients with insignificant risk for cancer.<sup>14</sup> Therefore, a negative TFNAB should be followed by second attempt at diagnosis using repeat TFNAB, bronchoscopy, or surgery. Eight of our 17 patients had the

diagnosis established within two weeks by one of these interventions.

Perhaps a change in wording on TFNAB reports could decrease the chance of a delay in diagnosis. It has been suggested that "negative" be used only for specimens with adequate cellularity. "Insufficient for diagnosis" would be semantically more appropriate for specimens with inadequate cellularity. Furthermore, the report of a nondiagnostic cellular sample could say "cells present are not diagnostic of a specific lesion."<sup>17</sup> Such changes in terminology might help the physicians who order TFNAB, particularly primary care physicians. Radiologists and pathologists should advise clinicians about the need to carefully monitor patients with "negative" aspirations. □

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there is sparse documentation of the actual interval to subsequent correct diagnosis. A number of series have documented false-negative TFNAB without reporting the delay in diagnosis.<sup>4-8,11-15,17</sup> Others give scanty information: Todd and colleagues stated that, of 36 false-negative cases, five had delay in treatment of longer than four months (three eventually were diagnosed at thoracotomy and two developed nodal metastases detected on subsequent mediastinoscopy).<sup>10</sup>

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# Carolina Physician's Bookshelf

Book review editor: Edward C. Halperin, MD, Professor and Chair,  
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## *The Rough Riders*

By Theodore Roosevelt, originally published in 1899,  
available on audiocassette narrated by John Randolph  
Jones, Recorded Books, Inc., 1993, ISBN 1-55690-914-4

Has the *North Carolina Medical Journal* gone completely off the deep end? Here we are reviewing a book published in 1899! I suppose everyone has heard the joke about the old magazines in the doctor's waiting room, but this is ridiculous!

My encounter with this 1899 book began innocently enough. Part of my responsibilities at Duke include serving as a radiation oncologist at a variety of off-site hospitals. This sometimes involves a 1 1/2- to 2-hour drive in the morning to the hospital and an equal amount of time for the return trip. I know that there

are some people who can deal with trips of this sort by listening to music and others who become fans of public radio. I don't have enough patience, or the ability to "zone out," to deal with the long drive with either of these techniques. I have tried listening to continuing medical education tapes but this requires a fair amount of concentration. Therefore, if you have to swerve, change lanes, or come

to a stop, you have to put the tape on hold and reverse it to be sure you didn't miss something.

A reasonable alternative to the continuing medical education tapes are recorded books. These are available from a variety of companies. I rent them by the month. The book arrives in the mail, consisting of four to 10 cassettes and narrated by an actor. I try to pick things that don't require too much concentration and they help to while away the time during long drives.

It was through this means that I encountered Theodore Roosevelt's 1899 book, *The Rough Riders*. The story of Theodore Roosevelt is, of course, known to most schoolchildren. Roosevelt was the product of an upper middle-class family of Dutch origin in New York. He was a weak and sickly child who, through a program of vigorous physical exercise, built himself up. Roosevelt ultimately graduated from Harvard. Following the simultaneous death of his first wife and his mother, Roosevelt moved to the

American West where he worked, for several years, as a deputy sheriff, cowboy, and horseman. He was a profoundly intellectually curious individual and wrote prolifically. He produced a variety of serious books of history including *A History of the War of 1812*, travel books describing his experiences in the western United States, books devoted to conservation, descriptions of big game hunting in Africa, collections of letters, and various political tomes.

Ultimately, Roosevelt returned to New York state where he threw himself into politics. He served in the New York State Assembly, as a civil service commissioner, and as a police commissioner. Eventually he ended up in the Navy Department in the McKinley administration where he, along with others, agitated for war with Spain.

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"Several interesting aspects of Roosevelt's narrative of the Spanish-American War intrigued this physician-listener. For example, I never knew that Theodore Roosevelt was not the commander of the Rough Riders. The commanding officer was, in fact, a physician—Dr. Leonard Wood."

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The war with Spain was the result of prompting by a warmongering "yellow press" which took considerable liberties with the truth to build up allegations of "Spanish atrocities" in Cuba. A growing sense of American imperialism led to an interest in "driving the Spaniards out of the Western Hemisphere." When the *USS Maine* blew up in Havana Harbor under mys-

terious circumstances, the dye was cast and war was declared.

What does any of this have to do with medicine? Several interesting aspects of Roosevelt's narrative of the Spanish-American War intrigued this physician-listener. For example, I never knew that Theodore Roosevelt was not the commander of the Rough Riders. The commanding officer was, in fact, a physician—Dr. Leonard Wood.

Wood was, by all accounts, a remarkable man—a fact Roosevelt drives home at every opportunity. After graduating from Harvard Medical School in 1884, Wood worked briefly as a chief surgeon for the Southern Pacific Railway. He subsequently entered the Army Medical Corps. He was assigned to the cavalry units pursuing Geronimo and was present at the capture of the Apache leader. Wood had a natural affinity both for medicine and for persevering in the marches through the hot desert and rugged mountains. He was ultimately awarded the

Congressional Medal of Honor and given command of an infantry unit. Wood later served as personal physician to Presidents Cleveland and McKinley.

While in Washington, Wood became a close friend of President McKinley's young assistant secretary of the Navy, Roosevelt. Both men strongly favored military intervention in Cuba against Spain. When the *Maine* exploded in Havana Harbor and war was declared in April 1898, Wood was named colonel and commander of an all-volunteer Cavalry regiment, officially called the First United States Volunteer Cavalry, but known to every schoolchild as the "Rough Riders." Roosevelt was named a lieutenant colonel and second in command.

The Rough Riders contained an assortment of cow punchers, sheriffs and marshals, miners, and hunters, as well as portions of the Harvard, Yale, and Princeton football teams—all in search of combat and adventure. The short-lived campaign included a landing on the southeastern coast of Cuba, a brief skirmish with the Spanish, a march on the city of Santiago, the battle of San Juan and Kettle Hills, a short siege of Santiago, and the eventual capitulation of the city when the Spanish fleet was decimated by the US Navy—thus cutting off possibilities of reinforcement. The Philippines were taken by sea by Admiral Dewey (in fact Dewey was victorious so quickly that he had to stall until troops could land to occupy the city). Puerto Rico was taken in a brief campaign.

After the brief and bloody Santiago campaign, Wood went on to become military governor of Cuba, military governor of the Philippines, chief of staff of the US Army, and a candidate for the Republican nomination for president in 1920. Wood lost out, at the convention, to Warren G. Harding who eventually was elected president. Wood had been offered, but declined, the nomination of vice president. When Harding died in office, Calvin Coolidge, the taciturn governor of Massachusetts who ultimately took the vice presidential job, became president. Thus, Wood was almost our first physician-president. Wood died in 1927 of a meningioma, having been operated on by Dr. Harvey Cushing.

In addition to encountering Leonard Wood, Roosevelt intrigued this physician-listener with a dramatic accounting of ballistic injuries suffered by his troops. The Spanish Army used German weapons and many Americans were killed or wounded by these Mauser bullets. Roosevelt graphically describes the wounds wrought by these weapons and the pitiful state of medical care and sanitary conditions during the war.

Roosevelt is unstinting of his criticism of US military incompetence. Inefficient transportation, inadequate food, bungling bureaucratic organizations, and the inability of his military superiors to recognize the decimation wrought on US troops by tropical disease all draw his wrath. After the war was won, epidemics in the Army camps eventually forced commanders in the field to publicly call for an evacuation of troops from Cuba.

Roosevelt's personality emerges in his narrative—without equivocation. The future president's language sounds like the dialogue you'd expect in an inspirational grade school history

book. Roosevelt describes how some of his troops were, before their military service, territorial marshals who had chased "white desperadoes." When he praises his troops we hear language like: "duty...virtue...vigor...manliness...gallantry...fearlessness...coolness under fire...anxious to see action." Roosevelt vividly describes the conduct of the "colored troops" charging up San Juan and Kettle Hills—occasionally using racist language and images, although not as often as I might have expected.

Roosevelt and Dr. Wood made enjoyable company on my commutes. I recommend them to you. □

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*On Doctoring: Stories, Poems, Essays*

Reynolds R, Stone J, editors. New York: Simon and Schuster, 1995, ISBN 0-684-80255-4, \$30

My wife and children presented me with this anthology last year. The flyleaf promised "this new, larger edition of *On Doctoring* is an extraordinary collection of stories, poems, and essays written by physicians and nonphysicians alike—works that record what it is like to be sick, to be cured, to lose, or to triumph.... At a time when medicine is becoming more and more technical and institutionalized, the book captures the breadth and wonder of the medical profession, reminding us of what it is really all about." Wow, an ambitious undertaking for only 448 pages!

What *On Doctoring* provides is a collection of short stories, poems, excerpts from books, and essays. After a few selections from The Bible, Keats, and Donne we leapfrog to the late 19th century for a half-dozen authors. The next approximately 60 writers are 20th-century writers. I would have thought that more selections could have been found outside our own time.

I wish I could tell you that this is a great book, perfect for the physician on your gift list, and appropriate for your own nightstand. Sorry. Frankly, a lot of the selections are not about doctoring at all—they are about death, aging, and illness. I, for one, don't think that the subjects are interchangeable. I also didn't enjoy most of the poetry—although I'm prepared to admit that this may be my fault. I think that the appreciation of poetry is an energy-requiring process. I haven't expended the energy.

The book is redeemed by some notable descriptions of the practice of medicine: Elspeth Cameron Ritchie's "Hospital Sketchbook: Life on the Ward through an Intern's Eyes," David Hilfiker's exceptional essay on errors in medicine, a selection from Abraham Verghese's book *My Own Country*, and Joseph Hardison's "The House Officer's Changing World."

*On Doctoring* will reward the selective reader. If a third edition is planned, I'd suggest that the editors substitute some selections from pre-20th century English literature and endeavor to be truer to their title—the book is supposed to be about doctoring, not about being ill. □



# New Views of Sickle Cell Disease

Wendell F. Rosse, MD

Sickle cell disease was first recognized more than 85 years ago, and the exact nature of the molecular defect that causes has been known for at least 40 years. Despite the historical position of sickle cell disease as the first described "molecular" disease, a great deal of research in the past few years has led to some new and interesting insights.

## The Geographic Origins of Sickle Cell Disease

The defect in sickle cell disease consists of an inherited abnormality in the hemoglobin molecule. In all affected patients, the 6th amino acid from the beginning (the amino terminus) of the  $\beta$  chain is changed from glutamine to valine, changing hemoglobin A (HbA) to hemoglobin S (HbS). The change in protein structure is *always* due to a change in the gene in which a thymidine molecule is substituted for an adenine. Examination of the genetic material surrounding that encodes for the  $\beta$  chain (using a process known as detection of restriction fragment length polymorphisms or RFLPs) shows that the substitution of thymidine for adenine occurred in only five original individuals, each of whose descendants are characterized by a specific RFLP pattern or

haplotype. All patients with sickle cell disease or sickle cell trait ("trait" means having a HbS gene from one parent, and a HbA gene from the other parent) are descended from these five founders.<sup>1</sup>

By ascertaining the geographic density of the occurrence of each specific haplotype, we can deduce where the abnormal gene originated and how far it has spread from its site of origin (Figure 1, next page). The most widely spread sickle cell gene haplotype began in what is now Nigeria; it is called the Benin type. This gene found its way to the Mediterranean region (either through trans-Sahara trade or through the importation of slaves in late Roman times) and is the gene seen in patients of Greek or Italian ancestry. Another widespread gene originated in the area just north of the mouth of the Congo River (the Central African Republic, or CAR haplotype). The Senegal haplotype originated in western Africa, near modern Liberia, and a fourth African haplotype originated very recently in Cameroon where it is found only in members of a single tribe. The fifth sickle gene originated outside of Africa, in the Indus valley of India, probably during the Harappa civilization that flourished there about 4,000 years ago. It is found in descendants of the aboriginals of India now called the Hill Tribes. This gene and the African gene from Benin have spread to the Arabian peninsula.

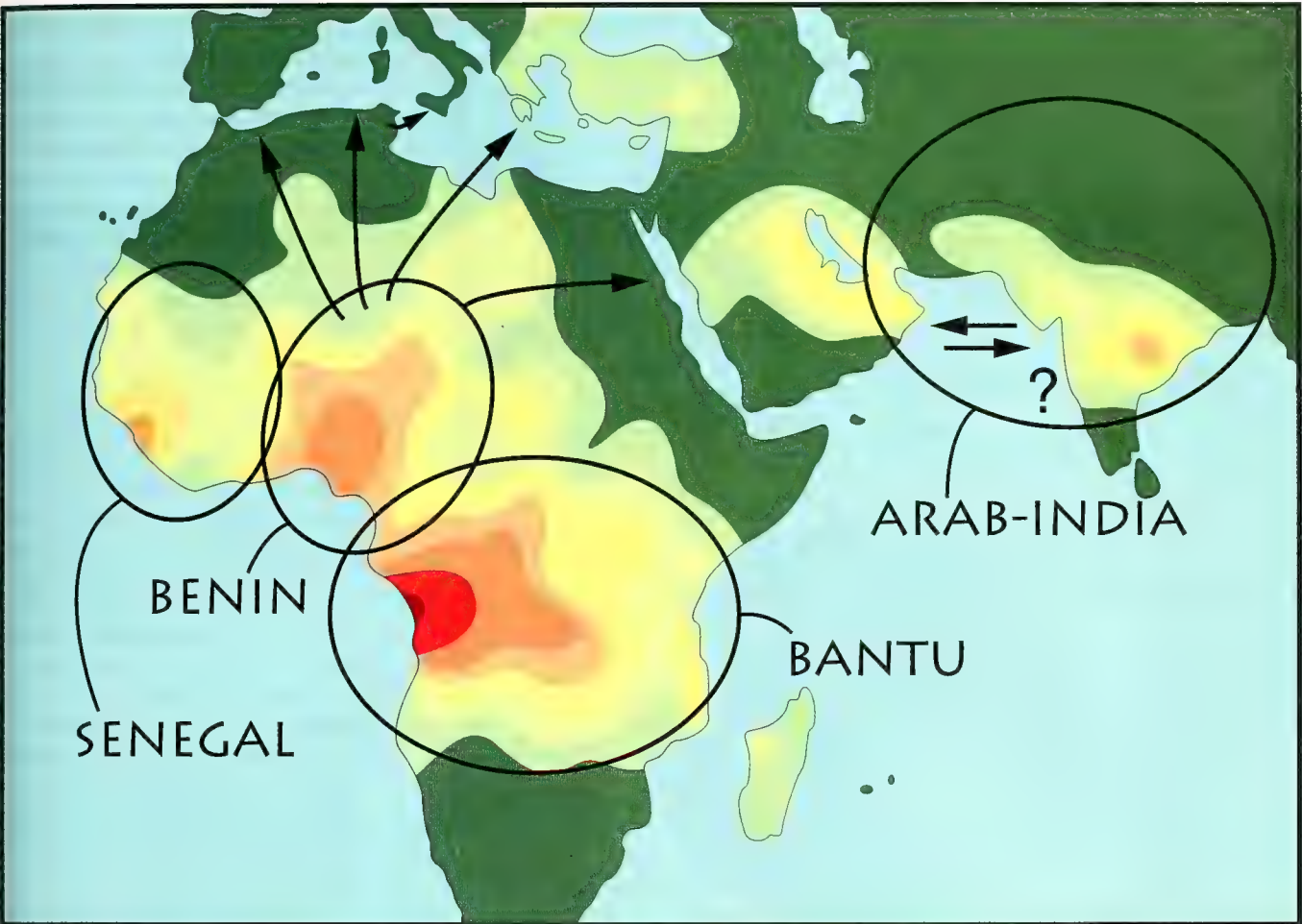
From analysis of the sickle genes of African-Americans, the pattern of importation of slaves into America can be deduced. The two major sites of importation were Charleston, South Carolina,

and the Chesapeake Bay area of Virginia. Most of the slaves brought into Charleston came from West Africa. As a result, the Senegal haplotype is present in higher percentage in upland South Carolina than elsewhere. After the importation of slaves was made illegal, there was still illicit importation to the Sea Islands off Georgia and South Carolina from the only remaining entrepôts in Africa (in Portuguese Angola); these individuals primarily had the CAR sickle gene. In Virginia, the predominant importations came from English and Dutch entrepôts on the "Slave Coast" (modern Ghana, Benin, and Nigeria) so that most of these individuals had genes of the Benin type, which still predominates in the Mid-Atlantic area.

## What Is the Effect of the Sickle Cell Defect?

Why did the mutations that led to HbS in five individuals prosper so well? For some time it has been thought from epidemiological data that the gene conferred a resistance to malaria. This has now been confirmed by demonstrating that the red cells of individuals with sickle trait resist invasion by the malarial organism, thus making those individuals less likely to be infected. This (and several other abnormalities of the red cells) allowed African slaves to remain in malarious lowlands of the Carolinas during the summer when their European-descended owners fled to the uplands. The relatively recent appearance of the sickle gene probably corresponds to the relatively recent emergence

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**Fig 1:** Distribution of the different sickle gene haplotypes in Africa and Asia. (Adapted and redrawn, with permission, from: Embury SH, Hebbel RP, Mohandas N, et al. *Sickle Cell Disease: Basic Principles and Clinical Practice*. Raven Press, Ltd., 1996, p 355.)

of malaria. Human malaria requires a critical concentration of individuals for its continued propagation, a concentration probably only achieved when early humans began to live settled, communal lives.

The single amino acid change in the  $\beta$  globin gene has far-reaching consequences. It alters the external surface of the molecule so that, upon deoxygenation, it can bind to another like molecule and become part of a long string of pairs of molecules called a paracrystal (Figure 2, next page). Each paracrystal associates with some 13 other similar chains to form a rod inside the red cell. Rod formation leads to a number of effects:

1. It distorts the cell into a sickle shape, reducing its ability to circulate and causing some hemolysis.
2. It alters the membrane so that the cell more readily sticks to endothelial sur-

3. It increases the internal viscosity of the cell, which in turn may increase the viscosity of the blood.

Figure 3, next page, shows the sequential effects of these changes. All lead to permanent or functional vascular occlusion and the impaired perfusion of organs that causes most of the clinical problems in sickle cell disease.

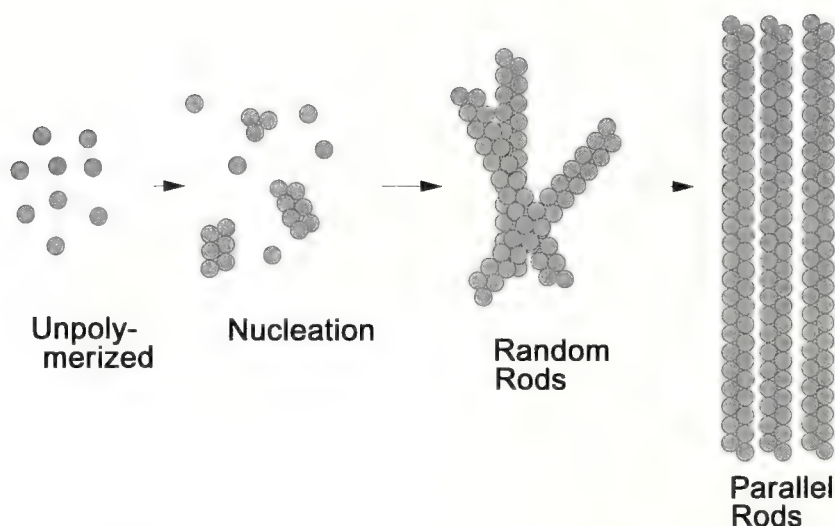
### When and Why Do People Die of Sickle Cell Disease?

For many years, it was thought that sickle cell disease was an illness of childhood, and that most patients died before early adulthood. The Cooperative Study of Sickle Cell Disease recently found otherwise.<sup>2</sup> There is an early peak of mortality

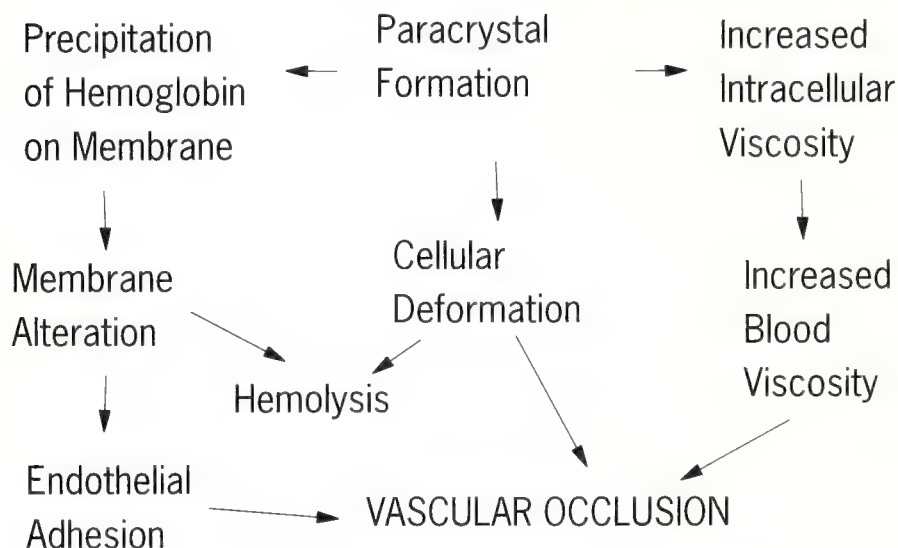
during the first three years of life, due primarily to acute infection (treatment can limit this—see below). There follows a period during which few patients die from the disease itself, but beginning in the middle 20s, patients again begin to die. The mean age at death for patients who receive HbS genes from both parents (that is, who are homozygous for HbS) is 44 years for men and 46 for women. Longevity is markedly improved in patients who, for any of a number of reasons, have high levels of fetal hemoglobin (HbF) in their red cells. Other abnormal hemoglobin molecules may alter survival. For example, patients who have one gene for HbS and one for hemoglobin C (SC disease, the next most common sickling disorder) have high levels of HbF and live about 15-20 years longer than patients with SS disease.

Patients die of a variety of problems,





**Fig 2:** Formation of the paracrystal from sickle hemoglobin molecules upon deoxygenation.



**Fig 3:** The effects of paracrystal formation on the red cell in sickle cell disease.

but we are often left uncertain about the exact cause (Figure 4, next page). In at least a 20% of cases, no cause can be specified; in about 15%, death is due to chronic organ damage, usually renal or cardiac; in over 30%, it is due to pulmonary problems which are lumped together as "acute chest syndrome."

**The acute chest syndrome.** This syndrome, now recognized as the major cause of death, is second only to the painful episode in frequency and is unrivaled in

the severity of its consequences.<sup>3</sup> It probably begins with the accumulation of sickled cells in the pulmonary arterioles. Normally, these cells unsickle when they take up oxygen, but if there is interference with the transfer of oxygen or with the perfusion of the area, sickled cells accumulate. This further impairs blood flow and widens the area of poor perfusion, which may show on the chest x-ray as a pulmonary infiltrate. The affected area is ideal for bacterial growth so that, even if not infected originally, it becomes

infected. This process may spread very rapidly to involve large areas of lung, leading to poor ventilation and arterial oxygen desaturation (Figure 5, next page). The ultimate result may be systemic hypoxemia and the "multi-organ damage syndrome" or "sludge" syndrome described below.

Several things predispose patients to the acute chest syndrome. In children, it is usually precipitated by a chest infection; in adults, it commonly accompanies painful episodes and is more common in patients with relatively high hematocrit (such as patients with SC disease or sickle  $\beta$  thalassemia). It is the leading cause of postoperative morbidity, particularly in operations near the diaphragm and in patients who have not been prophylactically transfused.

There are several steps in the care of the "acute chest syndrome." All adults with chest infiltrates *must* be closely observed; this often means that the patient must be admitted to the hospital. If fever is present, antibiotics should be given empirically. Oxygen should be given by nasal catheter. If the infiltrate worsens or if the arterial oxygen saturation cannot be maintained, immediate and complete exchange transfusion should be carried out. It is important to recognize how lethal this syndrome can be and to give maximal attention to the care of the patient.

**The "acute multi-organ damage" syndrome.** This life-threatening syndrome occurs when blood becomes too viscous to perfuse tissues.<sup>4</sup> Whole blood viscosity is determined by several factors: the viscosity of the plasma (not a concern in this setting), the internal viscosity of the red cells (increased in sickle cell disease because of the formation of paracrystals of hemoglobin), and the proportion of red cells in the blood (the hematocrit). Whole blood viscosity will be elevated when the sickle hemoglobin is deoxygenated (because this increases the internal viscosity of the red cells) and/or when the hematocrit is increased. When

these conditions occur on the arterial side of the circulation, organ perfusion becomes difficult and tissue hypoxia may result. This leads to loss of organ function (coma if the CNS is involved, acute renal failure if the kidneys are, etc.) and some necrosis. Hypoxia usually affects more than one organ at one time and, unless recognized and treated promptly, results in permanent loss of function and even death. Nasal oxygen should be given and hyperbaric oxygen may be of help if available. Most importantly, immediate and complete exchange transfusion should be done; if this is cannot be done locally, the patient should be transferred quickly to a facility that can do it.

## Pain in Sickle Cell Disease

The most common complication of sickle cell disease is the painful episode.<sup>5</sup> The pain is due to tissue hypoxia but we are not entirely sure what goes into causing the hypoxia. The typical painful episode has a discrete beginning, lasts five to 10 days, and has a gradual resolution. Between episodes, the patient is nearly asymptomatic. During the painful episode, there is evidence of intravascular clotting, suggesting obstruction to flow caused by an agglomeration of sickle cells which then activate clotting within the agglomeration. The pain presumably doesn't resolve until the fibrin clot is fully digested and the agglomeration disassembled. The initial causes of these episodes and the reasons why pain may occur in several sites at the same time are not at all clear.

In some patients, particularly those with a hematocrit higher than 32%, pain may be chronic. The episodes are not discrete and do not seem to resolve satisfactorily, leaving the patient with some pain on most days. This pain may result from difficulty in perfusion on a more moderate scale than in the "sludge" syndrome. There is no evidence of

increased coagulation; since no aggregations of cells occur, no clot surrounds them.

The possible differences in origin of pain have implications for treatment. Occlusion pain can be treated vigorously with maximal narcotics, avoiding meperidine (Demerol) because it has limited duration of action and presumably causes more hypoxia. Increasing the arterial oxygen concentration (even hyperbaric oxygen) does not help because the occlusions are set in place by surrounding clot. On the other hand, perfusion pain is more

chronic and access to narcotic medications needs to be somewhat limited so that patients do not become addicted. In theory, chronic pain symptoms should be relieved by reducing the hematocrit to allow better perfusion, but this idea has not yet been tested. Perfusion pain may be helped by increasing arterial oxygen concentration since there is no fixed obstruction. The nature and treatment of pain in sickle cell disease need further research, but at least we have a framework with which to think about this most vexing problem.

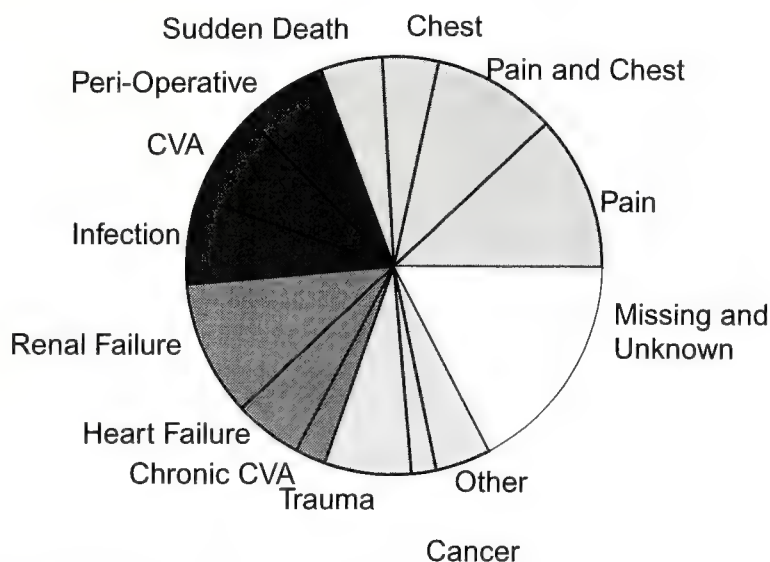


Fig 4: The causes of death in sickle cell disease.

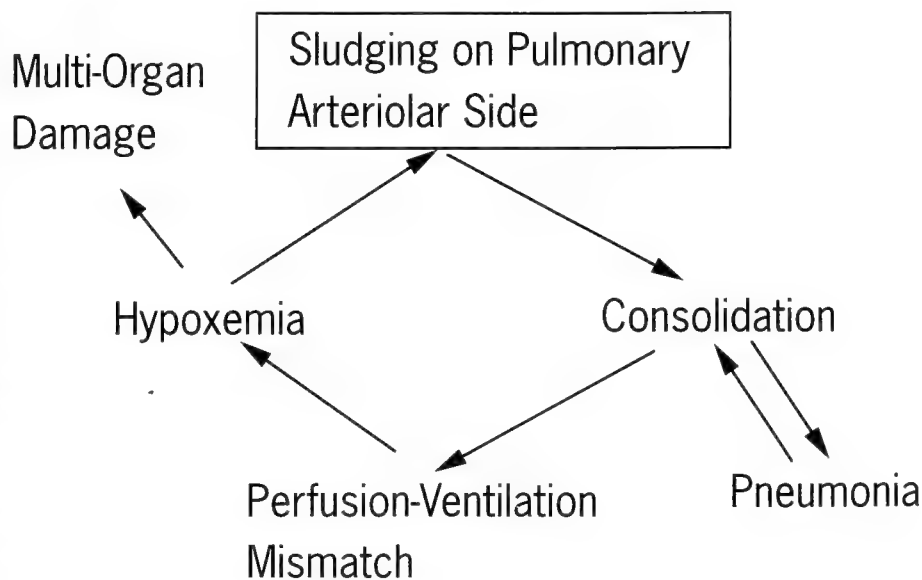


Fig 5: The "vicious cycle" that results in acute chest syndrome in sickle cell disease.



## Treatment Advances

**Prophylaxis with penicillin.** A major cause of death in children with sickle cell disease is sepsis caused by gram-positive organisms, particularly *S. pneumoniae*. The susceptibility occurs because the spleen, which becomes filled with sickled cells almost as soon as HbS begins to be produced instead of HbF, is essentially disabled. It no longer filters bacteria from the bloodstream to process them for a primary immune response. Hence, bacteremia readily turns to septicemia. Prophylactic penicillin can prevent this,<sup>6</sup> reducing the death rate from 15%-20% during the first five years to almost nothing. For this reason, most states screen newborns to identify those at risk and have a system to ensure that these infants get their penicillin.

The downside of prophylaxis is the development of penicillin-resistant organisms; this appears to be happening at an alarming rate in some areas. One possible answer is the development of vaccines against the antigens of the pneumococcus. Presently available vaccines are not effective until recipients are more than two years old, which is much too late to be very useful. Improved vaccines, including those in which the pneumococcal polysaccharides are conjugated to proteins, are being developed and tested.

**Hydroxyurea.** When fetal hemoglobin is present in the cells of the patient with sickle cell disease, the clinical effects of the disease are ameliorated. This was first suggested by studies of patients in eastern Saudi Arabia, where a gene that per-

mits the continued production of HbF is often inherited along with the sickle cell gene. Most patients with homozygous sickle cell disease are asymptomatic when they have persistent production of HbF. The Cooperative Study of Sickle Cell Disease showed that increased levels of HbF reduced the likelihood of painful episodes<sup>5</sup> and lengthened life expectancy.<sup>2</sup>

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“Recently, bone marrow transplantation has been used in sickle cell disease in children who have already had complications. The mortality rate of transplantation was about 10% and the success rate was about 70%.”

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Several drugs cause the body to continue to make HbF. Of these, the safest discovered to date is hydroxyurea (HU), which has been used as a chemotherapeutic agent in myeloproliferative diseases for a number of years. In a double-blind study of patients with homozygous sickle cell disease, HU was found to reduce by over 50% the incidence of painful crisis and of acute chest syndrome.<sup>7</sup> The dose of HU must be carefully tailored to each patient and requires a careful dosing schedule since overdose causes dangerous marrow suppression. The drug can be

given only under strict medical supervision, but it is the first successful specific treatment for sickle cell disease. It has made an enormous difference in the lives of many patients.

**Bone marrow transplantation.** The development of bone marrow transplantation over the past several years has made it safer to replace diseased marrow with a normal marrow. Transplantation between HLA-identical siblings has been used with great success in thalassemia, where the clinical consequences of the disease are more predictable than in sickle cell disease.<sup>8</sup> Recently, bone marrow transplantation has been used in sickle cell disease, particularly in children who have already had complications. In this group, the mortality rate of transplantation was about 10% and the success rate was about 70%. These results make it reasonable to consider bone marrow transplantation at an early age for all children who have appropriate donors.

**Gene therapy.** The hope of modern medical science is to replace or modify the abnormal genes of patients with genetic disease. In the case of sickle cell disease, the replacing gene must have a very high production rate to make enough hemoglobin to fill the cell; this has not yet been achieved. Other scientists are concentrating on understanding and modifying the steps that govern the change from fetal to adult hemoglobin production. Gene therapy has great promise, but for the foreseeable future it remains only a promise in the treatment of sickle cell disease. □

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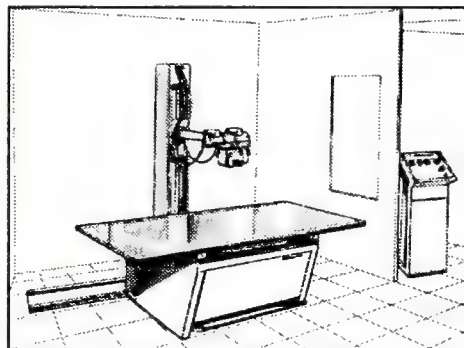
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# "All But Death, Can Be Adjusted"

## Ma Huang (Ephedrine) Adversities

Ronald B. Mack, MD

The poet, Emily Dickinson, spent her adult life writing verse that dealt with the universal themes of love, death, and immortality. She became a recluse in her early 20s, allegedly because of a disappointing *affaire de coeur*, and thereafter communicated with her friends solely through letters to them.<sup>1,2</sup> Probably the "Belle of Amherst" would have been happier if she had had access to ephedrine. But then, artificially happy, she might not have written that profound poetry, revealing her spectacular insights into the deep emotions encountered by all human beings able to experience "feeling."

In this age of modern medicine, amid daily reports of diagnostic and therapeutic advances, many Americans express an interest in alternative forms of health care—including nutritional supplements and herbal remedies—to assuage real or imagined ailments. Most of these nostrums are available at health food stores, convenience stores, and exercise facilities. Of course, they do not require a prescription. One of the more popular products in current use has been available in China for the past 5,000 years.<sup>3,4</sup> It is ma huang, an herbal remedy that contains ephedra.

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Five millennia ago, ma huang was used to combat the common cold, asthma, allergies, cough, headache, and fever.<sup>4</sup> Today, it is widely used in products that are alleged to boost energy, control weight, and heighten sensations, but is still promoted to relieve cold symptoms and improve respiratory function.<sup>4</sup> In some cases ephedra is touted as an "herbal high" (not surprisingly, those who believe this are primarily the young of our species searching for better health or a better "high"). Ephedra is known by many common names in addition to ma huang: miner's tea, Mexican tea, sea grape, yellow horse, teamster's tea, and popotillo. Mormon tea and squaw tea are beverages made from alkaloid-free species of this herb.<sup>4</sup> The problem with listing ephedra as a so-called "food supplement" is that the Food and Drug Administration has linked it to 17 deaths.<sup>5</sup> And more than 800 people have been treated for disorders traced directly to "health food" preparations sold to reduce weight, build muscle, and improve stamina.<sup>6</sup>

### Ephedra's Family Tree

At least 40 species of evergreen plants are members of the genus ephedra. The various species have worldwide distribution and appear as erect, evergreen plants resembling small shrubs. They have a thick woody base and many slim, jointed branches covered with thin, scale-like leaves. All of these plants have a distinc-

tive pine odor and an astringent taste,<sup>3</sup> but not all produce alkaloids. In those species that do, the highest concentration is found in the green branches. A number of alkaloids possessing sympathomimetic properties may be present, including pseudoephedrine, norephedrine, and norpseudoephedrine, but principally ephedrine. Ephedrine was first isolated from ephedra in 1887 by the Japanese,<sup>5</sup> but Western medicine did not see any therapeutic value in it until 1930 when Chen and Schmidt published a comprehensive document recommending it for treatment of asthma.<sup>7</sup>

Ephedrine stimulates both alpha and beta-adrenergic receptors.<sup>3,4</sup> For readers who went to medical school as long ago as I did, a short review may be in order. The pharmacology teachers who instructed us were noble men and women for sure, but still obsessed with turning base metals into gold. In any case, what I now know is that stimulation of alpha-1-receptors produces contraction of both vascular smooth muscle and genitourinary smooth muscle, as well as increased contractile force of the heart and arrhythmias, as well as glycogenolysis, gluconeogenesis, and hyperpolarization and relaxation of intestinal smooth muscle. Stimulation of alpha-2-receptors decreases insulin secretion, platelet aggregation, and the release of norepinephrine from the nerve terminals, but causes contraction of vascular smooth muscle (like alpha-1-receptor stimulation).

If you stimulate beta-1-receptors you

get increased force and rate of contraction of the heart, increased velocity of conduction through the atrioventricular node, and increased renin secretion. If you stimulate beta-2-receptors you get relaxation of smooth muscle (of blood vessels, bronchi, the gastrointestinal and genitourinary tracts) as well as glycogenolysis, uptake of potassium, and gluconeogenesis. Finally, stimulation of beta-3-receptors causes lipolysis. Lest I forget, in addition to its direct sympathomimetic effects, ephedrine can release norepinephrine from its storage sites.<sup>3</sup> This type of science differs from what I learned as a young doctor—things like giving mercury compounds to produce a diuretic effect on the kidneys. I cannot believe I ever did such things, but I did as an intern at Chicago's Cook County Hospital, God forgive me!

## The Pharmacologic Perspective

Putting these pharmacologic data in perspective, ephedrine in therapeutic dosage leads to cardiac stimulation and elevated systolic and diastolic blood pressure. Giving ephedrine frequently or for a prolonged period can produce tachyphylaxis<sup>3</sup> (a progressive decrease in response after repetitive administration of a pharmacologically active substance) to its effects on blood vessel and bronchial smooth muscle. Depletion of norepinephrine stores by ephedrine is believed to be one cause of tachyphylaxis.

Ephedrine is completely and rapidly absorbed after oral, intramuscular, or subcutaneous administration.<sup>9</sup> The drug is distributed throughout the body and crosses the blood-brain barrier. It is primarily metabolized by N-demethylation to norephedrine.<sup>10</sup> Its half-life ranges between 2.7 hours to 7.5 hours. Within 48 hours, 70%-80% of a given dose is eliminated unchanged in the urine where it can be detected by a number of tests.<sup>9</sup> The International Olympic Committee did not prohibit ephedrine consumption by competitors but did rule that urine levels over 100 ng/mL indicate abuse and are grounds for disqualification.<sup>7</sup> At least one author-

ity considers this level is too low because a recent study found that healthy volunteers given realistic doses of an ephedrine-containing nasal spray (approximately 14 mg) had urine levels of 0.09-1.65 ug/mL.<sup>11</sup>

It is not surprising that the toxic effects of ephedra-containing products are primarily due to ephedrine, and to a much lesser degree, pseudoephedrine. Both of these alkaloids stimulate the adrenergic system, and toxicity can occur after doses that are only two or three times the therapeutic dose. Recall that absorption of these compounds is rapid and effects can be evident one hour after ingestion. The good news is that the duration of the evil effects is usually short-lived and resolution of clinical adversities usually occurs within six hours because of the short half-life (unless the patient ingested a sustained-release product<sup>12</sup>).

The toxic effects of ephedra occur primarily in the cardiovascular and central nervous systems. Major adverse cardiovascular events include hypertension, cardiomyopathy, dysrhythmias, and myocardial infarction.<sup>6,10</sup> Severe CNS problems include seizures, psychosis, and stroke. There are many other troubling effects such as headaches, dizziness, tremors, anxiety, and auditory and visual hallucinations. Death is a real possibility. Speaking of death, as grave as a subject as there is, *People* magazine's May 20, 1996, issue<sup>13</sup> related the sad story of a group of young men who purchased some Ultimate Xphoria, an over-the-counter dietary supplement containing caffeine and ephedra. Only a few hours later one was dead, allegedly from a fatal cardiac arrhythmia induced by the "dietary supplement." On August 28, 1996,<sup>5</sup> the Associated Press reported that the FDA, headed by Dr. David Kessler, was concerned about the safety of these products and an FDA advisory panel was formed to consider their use. Even before that the FDA had warned of a link between ephedra and health risks "ranging from dizziness to seizures."<sup>14</sup> In 1992, a product called Herbal Ecstasy was introduced and has produced an estimated \$300 million for the entrepreneurs who promote this "eu-

phoria" producer.<sup>13</sup> It is even alleged that sales rose 25% after the FDA's warning, which supposedly implied that the chemical causes a big jolt. Herbal Ecstasy is not the same as the illicit drug "Ecstasy" (3,4-methylenedioxymethamphetamine, a.k.a. MDMA<sup>7</sup>). However, the manufacturers tout their product as increasing energy and enhancing sexual sensation, just as "Ecstasy" is supposed to do. The FDA has proposed removing oral ephedrine products from the open market because they are used in the production of illicit drugs, and they are misused as stimulants and for weight loss.<sup>6</sup>

The treatment of ephedra (ephedrine) overdose is not very satisfying. The drug is absorbed so rapidly that ipecac syrup is not a wise maneuver. If the patient is seen early, giving activated charcoal seems like a good idea to prevent further absorption of ephedrine. As usual, supportive care is paramount: Treat the patient, not the poison. It is essential to maintain an open airway and assist ventilation if necessary. Seizures should be treated with diazepam or lorazepam; if this fails, phenobarbital or phenytoin may be used.<sup>9</sup> Hypertension could be treated with vasodilators such as nitroprusside, hydralazine, phentolamine, or nifedipine. Lidocaine, low-dose propranolol, or esmolol are usually successful in treating tachyarrhythmias.<sup>13</sup> Toxic doses of ephedra produce a risk of rhabdomyolysis, so take heed and do not acidify the urine (this could, in theory, enhance the secretion of ephedrine but at the risk of increasing cardiac irritability and precipitating myoglobin in the renal tubules, leading to acute renal failure). After reading about this drug, which would you rather have: ma huang or a plate of lobster *fra diavolo*?

## A Fatal "Quick Fix"

The remainder of Emily Dickinson's poem, whose first line is quoted in the title of this article, reminds us that:

"All but death, can be Adjusted—  
Dynasties repaired—  
Systems—settled in their Sockets—  
Citadels—dissolved—



Wastes of Lives—resown with Colors  
By Succeeding Springs—  
Death—unto itself—Exception—  
Is exempt from Change—”<sup>1</sup>

It is very difficult to explain to citizens searching for a quick fix that getting “high” on life should be the *summum*

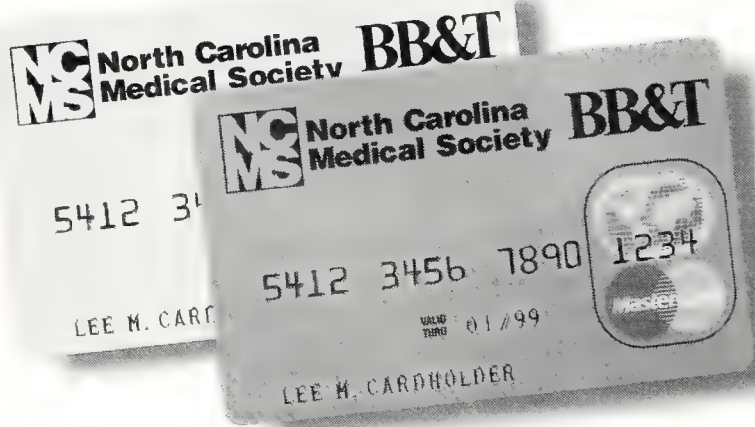
*bonum*. When you are dead it is for a very long time and cannot be adjusted. □

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# CME Calendar

## *January 6-7*

### **ACLS Renewal Course**

Place: Rex Healthcare, Raleigh  
Credit: 8 hours, AAFP  
Fee: \$100  
Info: Iris Ahlheit, RN, ACLS Course Coordinator, Educational Services Dept., Rex Healthcare, 4420 Lake Boone Trail, Raleigh 27607, 919/783-3161

## *January 9-10*

### **Challenges in Geriatric Practice**

Place: Friday Center, UNC Chapel Hill  
Credit: 13.5 hours Category 1, AMA  
Fee: \$185  
Info: Dail White, UNC Office of CME and Alumni Affairs, UNC School of Medicine, 919/962-2118, fax: 919/962-1664

## *January 21*

### **First Senior Physician Meeting**

Place: University Club, Durham  
Info: open to physicians who are retired, semi-retired, and 65 and older from Durham, Granville, and Person counties, and their spouses. Sponsored by the North Carolina Medical Society Foundation. Contact Nell Agee, Director, NCMS Foundation, P.O. Box 27167, Raleigh 27611, 800/722-1350 or 919/833-3836

## *January 21-23*

### **NIH Consensus Development Conference:**

#### **Breast Cancer Screening in Women Ages 40-49**

Place: Natcher Conference Center, NIH, Bethesda, MD  
Info: Conference Registrar, Technical Resources International, Inc., 3202 Tower Oaks Blvd., Rockville, MD 20852, 301/770-0610, fax: 301/468-2245, e-mail: confdept@tech-res.com

## *February 7-9*

### **4th Annual Physicians for a**

#### **Violence-Free Society Conference:**

#### **Alcohol—Fuel for Family Violence?**

Place: Hyatt at Fisherman's Wharf, San Francisco, CA  
Info: JoAn Dwyer, Associate Executive Director, Physicians for a Violence-Free Society, P.O. Box 35528, Dallas, TX 75235-0528, 214/590-8807, fax: 214/590-4079

## *February 8*

### **8th Annual Triangle Update in Cardiology Symposium**

Place: North Raleigh Hilton  
Info: sponsored by the American Heart Association, Wake Division; UNC School of Medicine; and Wake Area Health Education Center. Call 919/783-7853

## *February 8*

### **Urology State of the Art 1997**

Place: Winston-Salem  
Credit: 6.5 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School of Medicine, 910/716-4450, or Physician Access Line (PAL) 800/277-7654

## *February 11-13*

### **NIH Consensus Development Conference:**

#### **Interventions to Prevent HIV Risk Behaviors**

Place: Natcher Conference Center, NIH, Bethesda, MD  
Info: Conference Registrar, Technical Resources International, Inc., 3202 Tower Oaks Blvd., Rockville, MD 20852, 301/770-0610, fax: 301/468-2245, e-mail: confdept@tech-res.com

## *February 24-26*

### **4th Annual Cancer Conference:**

#### **Advances in Thoracic Oncology**

Place: The Breakers, Palm Beach, FL  
Info: jointly sponsored by Duke Comprehensive Cancer Center and The Cancer Institute and Good Samaritan Medical Center, West Palm Beach, FL. For info, contact: Duke Oncology Consortium, Box 3326, Duke University Medical Center, Durham 27710, or call 919/419-5500

## *March 12-15*

### **21st Annual Internal Medicine Conference**

Place: Friday Center, UNC-Chapel Hill  
Credit: 24 hours Category 1, AMA  
Fee: \$400  
Info: Dail White, UNC Office of CME and Alumni Affairs, UNC School of Medicine, 919/962-2118, fax: 919/962-1664

### **March 12-16**

#### **North Carolina Medical Society's Spring Conference: "Turning Adversity Into Advantage"**

Place: Washington Duke Inn & Golf Club, Durham  
Info: Alan Skipper, NCMS, 800/722-1350 or  
919/833-3836

### **March 14-15**

#### **Neurology for the Primary Care Provider**

Place: Winston-Salem  
Credit: 11 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School  
of Medicine, 910/716-4450, or Physician Access Line  
(PAL) 800/277-7654

### **April 4-5**

#### **Practical Pediatrics**

Place: Winston-Salem  
Credit: 9 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School  
of Medicine, 910/716-4450, or Physician Access Line  
(PAL) 800/277-7654

### **April 11-12**

#### **10th Annual Surgical Symposium and Hightower Lecture**

Place: Winston-Salem  
Credit: 9 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School  
of Medicine, 910/716-4450, or Physician Access Line  
(PAL) 800/277-7654

### **April 30-May 1**

#### **21st Annual Symposium of the UNC Lineberger Comprehensive Cancer Center: Innovative Approaches to Cancer Treatment**

Place: UNC Chapel Hill  
Info: Sarah Rimmer, 919/966-2997

### **April 30-May 4**

#### **Critical Care '97: 11th Annual Review and Update**

Place: Hyatt Regency, Washington, DC  
Credit: 41.25 hours, Category 1, AMA, and AAFP  
Fee: \$795 (by March 21) for physicians; \$575 for  
physicians-in-training and other allied professionals  
Info: Center for Bio-Medical Communications, Inc.,  
201/385-8080, fax: 201/385-5650,  
e-mail: cbcbiomed@aol.com

### **May 2**

#### **Building Partnerships for Healthier Hearts**

Place: Winston-Salem  
Credit: 11 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School  
of Medicine, 910/716-4450, or Physician Access Line  
(PAL) 800/277-7654

### **May 2-6**

#### **Council of Biology Editors Annual Meeting**

Place: Adam's Mark Hotel, Philadelphia  
Info: CBE, 60 Revere Drive, Suite 500, Northbrook, IL  
60062, 847/480-6349, fax: 847/480-9282

### **May 9-16**

#### **56th Annual American Occupational Health Conference**

Place: Orange County Convention Center, Orlando, FL  
Info: Kay Coyne, American College of Occupational and  
Environmental Medicine, 847/228-6850, ext. 152

### **May 14-16**

#### **Carolinas Medical Center Spring Symposium 1997**

Place: Charlotte Convention Center  
Info: Mary Anne Cox, CHS/Charlotte AHEC Office of  
CME, 1366 E. Morehead St., Charlotte 28204,  
704/355-8631 or 800/562-7314,  
e-mail: symposium@carolinas.org

### **June 6-9**

#### **Comprehensive Internal Medicine Board Review Course**

Place: Winston-Salem  
Credit: 32 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School  
of Medicine, 910/716-4450, or Physician Access Line  
(PAL) 800/277-7654

### **June 10-14**

#### **6th Annual Advanced Cardiovascular Interventions Symposium**

Place: Westin Resort, Hilton Head, SC  
Credit: up to 18 hours Category 1, AMA  
Fee: \$750  
Info: Mary Anne Cox, CHS/Charlotte AHEC Office of  
CME, 1366 E. Morehead St., Charlotte 28204,  
704/355-8631 or 800/562-7314

### **July 4-6**

#### **North Carolina Medical Society's Sports Medicine Symposium**

Place: Sheraton Hotel, Atlantic Beach  
Info: Alan Skipper, NCMS, 800/722-1350 or  
919/833-3836

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## Aphorisms of the Month

Daniel J. Sexton, MD, Section Editor

### "More Thoughts from Big Ed's Calendar\*\*"

We think in generalities; we live in details.

—*Alfred North Whitehead*

I wonder that a soothsayer doesn't laugh when he sees  
another soothsayer.

—*Cicero*

An ounce of mother is worth a pound of priest.

—*Pope John Paul II*

Being popular is important. Otherwise people might  
not like you.

—*Oscar Wilde*

Nobody is so irritating as somebody with less intelli-  
gence and more sense than we have.

—*Don Herold*

Ninety percent of the politicians give the other 10% a  
bad reputation.

—*Henry Kissinger*

It's a characteristic of all movements and crusades that  
the psychopathic element rises to the top.

—*Robert Lidner*

We're all of us sentenced to solitary confinement  
inside our skins.

—*Tennessee Williams*

Sports is the toy department of life.

—*Howard Cosell*

Realism is the art of depicting nature as it is seen by  
toads.

—*Ambrose Pierce*

Television has made dictatorship impossible but  
democracy unbearable.


—*Shimon Peres*

\* Big Ed's Calendar is a monthly feature in *Briefcase*, a publication  
of the Oklahoma County Bar Association, provided to the editor  
by John M. Perry, III.

*Fax aphorisms to Dr. Sexton at 919/684-8358,  
or send them via e-mail: sexto002@mc.duke.edu*

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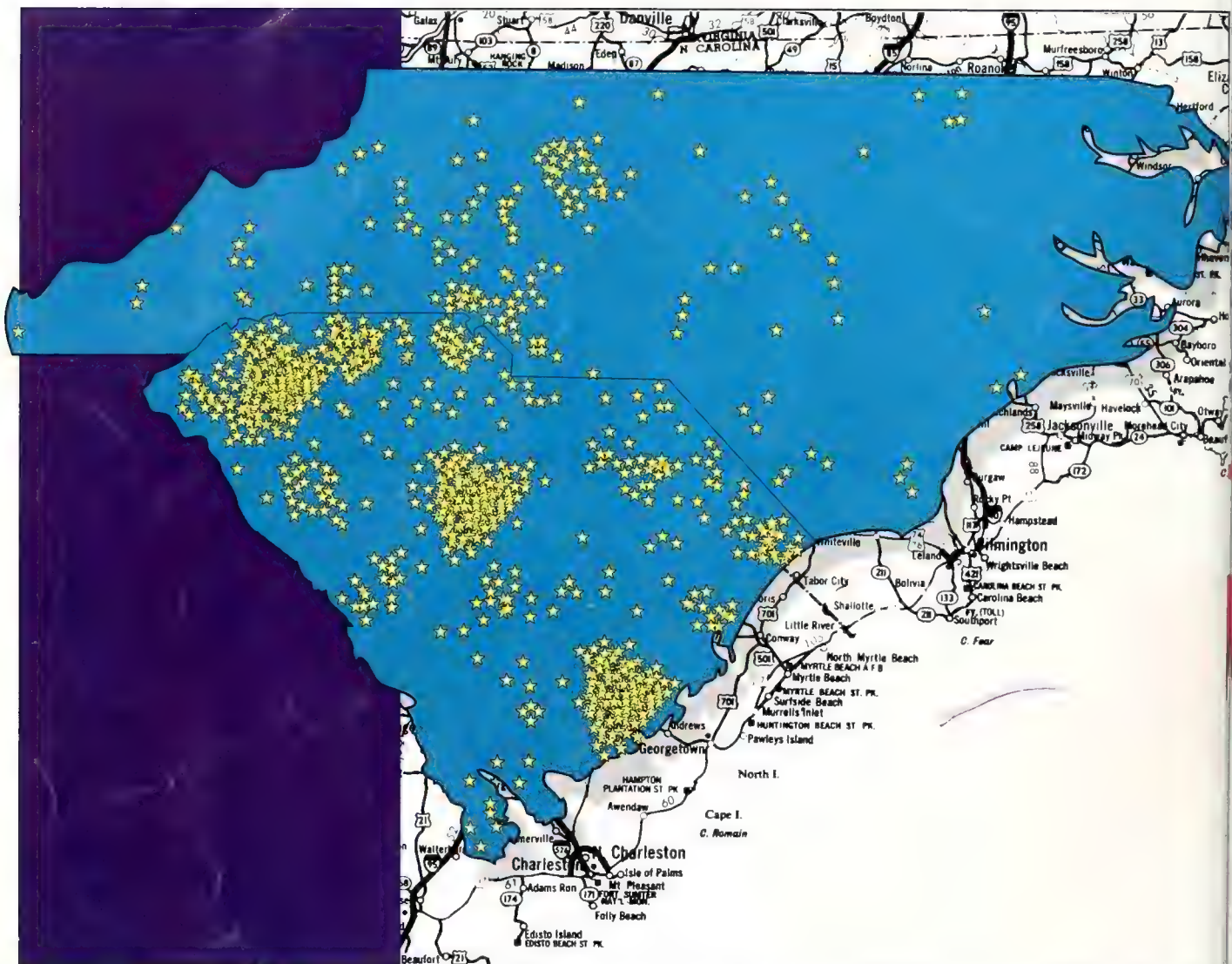
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It might demonstrate how on-going research and development brought innovations like the first integrated, direct electronic claims transmission in a practice management system.

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March/April 1997  
Volume 58  
Number 2

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S Bulletin

# North Carolina Medical Journal

For Doctors and their Patients

**SPECIAL SECTION:**

## Issues in the Health of Gay and Lesbian Patients

## Issues in the Medical Education of Gay and Lesbian Physicians

*Edward C. Halperin, MD, Guest Editor*

*Also in this issue:*

***More on Physician-Assisted Suicide  
Opportunities for Retired Physicians***

***Oxygen and Cancer***

***Pitfalls in Detecting Myocardial Infarction***

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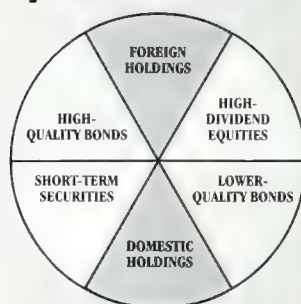
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# North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

March/April 1997, Volume 58, Number 2

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# **NORTH CAROLINA MEDICAL JOURNAL**

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# Letters to the Editor



## Faith at Face Value

**Editor's note:** The November/December *Journal* featured a photograph of bishops wearing red clown noses as part of an article on humor and aging by Mary Ann Glasgow-McDowell (NC Med J 1996;57:401-5). A reader wrote to say that he was offended by this "frivolous" depiction of Bishop J. Gary Gloster's ordination. Bishop Gloster responds:

### To the Editor:

I regret that this picture offended your reader. Ms. Glasgow-McDowell's litany of the benefits of positive and productive humor provides one with a recipe not only for physical health, but spiritual wholeness as well.

As the person ordained in the picture, I can assure your reader that the occasion was not one in which I or anyone present treated ordination frivolously. The picture represents only a small fraction of the time of the entire service. Scripture, prayers, vows of commitment to Christ, the celebration of the Holy Communion, the exchange of Peace, love, respect, and trust in God's love were also parts of the total service. If this is not an occasion for joy, then no time is. It was an occasion of far too serious a nature to be taken too seriously.

Aristotle, in his *Nicomachean Ethics*, suggests three types of people:

- 1) the "frivolous one" who took life too lightly;
- 2) the "boor" who took life too seriously; and
- 3) the "grave-merry master" who sought balance between seriousness and mirth.

The first two were buffoons; the third was a fool.

The psalmist declared "...in thy presence is fullness of joy." (Psalm 16:11). But also declared the reality of seriousness and tears in many instances.

Paul gave a nod to laughter and foolishness in his letter to the Corinthians:

"For consider your call, brethren; not many of you were wise according to worldly standards, not many were powerful, not many were of noble birth; but God chose what is foolish in the world to shame the wise, chose what is weak in the world to shame the strong;...so that no human being might boast in the presence of God." (I Corinthians 1:26, 27, 29)

"...we are fools for Christ's sake." (I Corinthians 4:10)  
When we become too serious, particularly about our religion, we are in danger of forgetting who we are and who God is.

Humor and joy, which the clown can bring, lift the pall that shrouds us when we take ourselves too seriously even in our worship. Theologians William Willimon and Soren Kierkegaard

suggest that an important aspect of faith is being able to laugh at ourselves. If people can laugh at themselves, they are saying, "I'm not God. I do not run the world." This is an occasion of Great Joy.

The service at which the picture was taken was an act of faith, as was our donning the clown noses. Come let us play.

The Right Rev. J. Gary Gloster  
The Suffragan Bishop of North Carolina  
201 St. Alban's Drive, P.O. Box 17025  
Raleigh, NC 27619-7025

## Editorial Board Chair Bids Farewell—But Not Goodbye

**Editor's note:** In November, the *Journal* bid a reluctant farewell to Dr. Margaret Harker, who spent the past four years as chair of our Editorial Board; the past eight as a Board member. To honor the valuable insight and tireless advocacy she provided the *Journal*, Dr. Neelon presented her with a gift certificate at the Annual Meeting given on behalf of the staff and Board members.

### To the Editor:

I thank you all for the generous and kind gift. I have been so blessed to work with the *Journal* and its family over the years, which was reward enough. I will never forget the wonderful, wise, educated, and dedicated folks I have come to know during my term as Board chair.

Learning the ins and outs of publishing a professional and lively journal has been fascinating. The covers and layouts are attractive, and it's gratifying to see the editor's shadow fall on every word. I greatly admire Dr. Neelon's expertise and personal attributes, especially his equanimity.

The challenges, ethical conundrums, and controversies facing medical practice these days have been mind-boggling (at least for this country mind). I have great expectations for the *Journal's* future, however, and take pride in a job well done in keeping pace with these changes.

I was discouraged that the *Journal* decreased its frequency "on my shift," but I am glad that its quality and beauty continue. I am pleased to see evidence of the *Journal's* initial Internet presence and hope that I was the first "hit" on its web page.

I hope to return to active participation with the *Journal* when the opportunity arises. With gratitude and thanks to all.

Margaret N. Harker, MD  
P.O. Box 897  
Morehead City, NC 28557



## Extending a Helping Hand in Russia

### To the Editor:

In the January/February *Journal*, Michael Gill and colleagues describe their part in establishing a relationship with Saratov Medical University ("Opportunities for Cooperation: A Dialogue With the Saratov Medical University, Russia," *NC Med J* 1997;58:44-6). They are to be commended for their fine work and initiatives. However, the work they describe was not the first medical connection between Saratov and the University of North Carolina at Chapel Hill.

Several physicians from Saratov Medical Center visited UNC before the events that Gill et al describe. During their visit, they met with leading physicians from UNC's medical school. At that time, Saratov desperately needed pharmaceutical medications, particularly antibiotics and medications to treat high blood pressure and diabetes. Through the efforts of the local chapter of Physicians for Social Responsibility, nearly \$20,000 worth of free samples were collected and repackaged into a small suitcase donated for delivery to Saratov. UNC's Continuing Medical Education centers also helped facilitate this effort.

Gestures of good will and reciprocity form the nature of the relationship that is under way between Saratov and UNC. Dr. Gill and colleagues deserve credit for their accomplishments.

Adam O. Goldstein, MD, Clinical Assistant Professor  
Department of Family Medicine, UNC School of Medicine  
CB# 7595, Manning Drive  
Chapel Hill, NC 27599-7595

## NCMS Foundation Program Targets Retired Physicians

### To the Editor:

The NCMS Foundation has begun a program that will offer alternatives for those physicians who have retired, who are semiretired, or who are contemplating retirement. Surveys show that most of us would like to continue some contact with our profession, and many of us would do *pro bono* work if insurance were provided and if we were asked. Some may be interested only in locum tenens or part-time work; still others may prefer only the social contact that will be provided.

*Journal* readers over age 55 will receive a letter outlining the goals and purpose of the Program, and a questionnaire asking for input and comments (please complete and mail back the questionnaire promptly). The project is early in its development, yet unique in its intent and open for suggestions.

We would appreciate the cooperation and participation of *Journal* readers. Contact: Senior Physician Program, Nell Agee, Director, P.O. Box 27167, Raleigh, NC 27611.

James H. Burruss, MD, Committee Member  
NCMS Foundation Senior Physician Program  
1203 E. Marion St.  
Shelby, NC 28151-1256

### From the Editor:

Dr. Burruss' letter arrived at an opportune time. See article on page 148 that describes the Program in detail.

JAMES R. LYLE  
President  
HealthCare Consultants  
of America, Inc.

JONATHAN I. KATZ  
Regional Sales Manager  
MAG Mutual Insurance  
Company



TOM HARKINS  
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Senior Advanced Underwriter  
MAG Mutual Financial  
Services, Inc.

CAROL A. QUAIF  
Director, Property & Casualty  
MAG Mutual Insurance  
Agency, Ltd.

## Monitoring the Health of NC's Elderly

### To the Editor:

Dr. Blazer's article in the November/December issue, "Older Adults in North Carolina: A Demographic and Health Status Profile" (NC Med J 1996;57:344-7) includes compelling data related to health status, health habits, and health service utilization from the 1986 Piedmont Health Survey. *Journal* readers, however, might not be aware that the North Carolina Department of Environment, Health and Natural Resources annually collects similar statewide data through the Behavioral Risk Factor Surveillance System (BRFSS).

BRFSS data, obtained through random telephone calls to North Carolina adults, represent the adult population of our state and are part of a nationwide surveillance system supported by the Centers for Disease Control. Special reports are often published that examine particular segments of the adult population of North Carolina, such as older adults.

For more information regarding BRFSS, readers may call me at 919/715-3131 or BRFSS Coordinator Kristi Passaro at 919/715-3354.

Eugene Lengerich, VMD, MS

Director, Office of Epidemiology, Div. of Health Promotion  
NC Dept. of Environment, Health and Natural Resources  
P.O. Box 29605, Raleigh, NC 27626-0605

## "Injuries" Article Useful to Sexual Assault Response Team

### To the Editor:

I request permission to reprint Dr. John Butts' article, "Injuries: Description, Documentation, Evidence Issues," that appeared in the September 1994 *North Carolina Medical Journal* on domestic violence (NC Med J 1994;55:423-7). We would like to make approximately 60 copies to distribute to the Fort Wayne Sexual Assault Treatment Center: Sexual Assault Nurse Examiner Program/Sexual Assault Response Team Program participants.

Stephanie Peterson

Director of Operations

Fort Wayne Sexual Assault Treatment Center

2200 Randallia Drive

Fort Wayne, IN 46805

### From the Editor:

We were pleased to grant Ms. Peterson permission to reprint this article. We have received more requests to reprint or cite articles from this particular issue than any other single *Journal* in recent years. The issue, published in September 1994, has long since sold out, but readers may reprint articles with the *Journal's* official blessing.

Send letters by mail: Box 3910, DUMC, Durham, NC 27710; by fax: 919/286-9219; or by e-mail: yohn0001@mc.duke.edu

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# Instructions for Authors

The *North Carolina Medical Journal* is a medium for communication with and by members of the medical community of this state. The *Journal* publishes six times a year: in January, March, May, July, September, and November.

The *Journal* will consider for publication articles relating to and illuminating medical science, practice, and history; editorials and opinion pieces; letters; personal accounts; poetry and whimsical musings; and photographs and drawings. Papers that relate to the present, past, or future practice of the health professions in North Carolina are especially pertinent, but manuscripts reflecting other perspectives or topics are welcomed. Prospective authors should feel free to discuss potential articles with the editors.

## Manuscript Preparation

Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and either a 3 1/2-inch hard disk or 5 1/4-inch floppy computer disk that contains the text written in MS DOS- or Macintosh-compatible format. Also enclose three hard copies of the text for review purposes. Double space text with one-inch margins. *Please do not "format" the text* (e.g. no variations in type size, no bold face, no italics, no embedded endnotes).

Submit illustrations, in duplicate, in the form of high-quality color 35mm slides or 5-by-7-inch or 8-by-10-inch glossy photographs, or as black-and-white glossy prints (5-by-7-inch or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. *Do not write directly on the backs of prints.* This can damage them. If figures require printing in four-color process, the author may be asked to pay printing fees or a portion thereof.

Type figure legends, double-spaced, on a separate sheet of paper. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers. Include tables, graphs, or charts on disk, if possible.

Keep references to a minimum (preferably no more than 15), retaining those that document important points. The "Uniform Requirements" cited above contain reference format. We customarily list the first three authors for "et al"-type references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

## Manuscript Review and Editing

A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. *Authors' cover letters must include a line that states that their submitted manuscripts are not under consideration for publication elsewhere.* Decisions to publish or not are made by the editors, advised by the peer reviewers.


We encourage a relatively informal writing style since we believe this improves communication. Imagine yourself talking with your unseen audience—as long as this doesn't lead you to scientific or linguistic inaccuracy. Be brief, clear, simple, and precise.

We edit accepted manuscripts for clarity, style, and conciseness. Except for letters, authors receive a copy of the edited manuscript for their review and approval before publication. Manuscripts not accepted will not be returned.

Authors retain copyright to articles published in the *North Carolina Medical Journal*, but the North Carolina Medical Society copyrights the contents of each entire issue. Requests for permission to reprint all or any part of a published article must be submitted in writing to the address below and negotiated with the author and editor jointly. Reprinted material must carry a credit line identifying that it appeared in the *North Carolina Medical Journal*.

## Submissions

Editor, *North Carolina Medical Journal*  
Box 3910, DUMC, Durham, NC 27710  
Telephone 919/286-6410, Fax 919/286-9219  
E-mail: yohn0001@mc.duke.edu



"Know what I  
need? A friend  
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avoiding risks."

The facts are overwhelming.

It seems every newscast, magazine, newspaper and tabloid carries a story of a malpractice lawsuit. There just isn't time to worry about risks – especially while I'm taking care of my patients.

What ever happened to security and peace of mind?

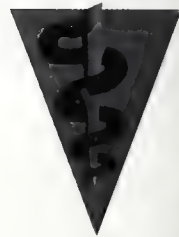
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# Why A Special Issue of the *North Carolina Medical Journal* on Gay and Lesbian Medicine?

Edward C. Halperin, MD, Deputy Editor

A few years ago I was strolling down one of the halls of Duke Hospital in the company of Dr. Eugene Stead, former editor of this *Journal* and former chairman of the Department of Medicine at Duke. Dr. Stead, at that time in his early 80s, was waxing philosophic about things he would have done differently as chairman.

"First," he told me, "I would have treated the Veteran's Hospital differently. I never cared particularly whether physicians started their clinics on time over there. I always thought that the veterans had time and they could wait for our doctors to get across the street. I now recognize that that was wrong. Even if the patients were in no rush, we were being insensitive to their families and friends who brought them. We were wasting their time."

Frankly, this observation, while interesting, did not bowl me over. Nonetheless, I continued to listen respectfully while we walked along.

"Another thing," Dr. Stead went on, "is that we didn't pay enough attention to the medical needs of gay people. It wasn't that we thought ill of gays—we just didn't think about them at all."

I found then, and I still find, this comment of Dr. Stead's arresting. Had I ever given any thought to the health needs of gays? Wasn't it extraordinary of Stead to make this comment—out of the clear blue?

I certainly don't remember any specific training in the health care needs of gays or lesbians during medical school or residency. To the extent that I, a radiation oncologist, considered the health care needs of gays at all it was in the management of Kaposi's sarcoma, CNS lymphoma, and anal carcinoma in HIV+ patients—an exceptionally skewed view of the clinical world.

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Dr. Halperin is Professor and Chair, Department of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710.

My personal life offered no insight into the health care needs of gays or lesbians or the problems faced by gay and lesbian physicians. I was born and raised in the most traditional of families (is it still okay to use the word "traditional"?): father, mother, two older sisters, and me. I have been married for 15 years. My wife and I are the parents of three children. The only gay person I know (or at least that I know I know) is a cousin who lives in the Northeast and whom I have seen at family functions twice in the past five years.

Dr. Stead spurred my curiosity. Beyond the scourge of HIV, do gay men and lesbians have special health care needs? What special personal and career problems face gay and lesbian medical students and physicians? What resources do physicians have available for dealing with the health needs of gay and lesbian patients?

An advantage of being deputy editor of the *Journal* is that I get to give vent to my curiosity. I was unaware of any precedent for a special issue of a general interest medical journal devoted to gay and lesbian medicine—so why not our *Journal*? Why not indeed! I decided to give it a try. (And the editor, bless his heart, didn't try and stop me.)

Our usual custom is to have special issues edited by a guest editor. Frankly, no one lined up outside my office door to volunteer for this task, so I decided to do it myself. Finding authors was also no mean feat. For no prior publishing project have I had so many requests for manuscripts go unanswered or promised papers go unsubmitted. Whether this was simply a run of bad luck or related to the subject matter, I cannot say. In any case, after about a year of effort, I have in hand an interesting series of papers concerning gay men, lesbians, and medicine.

Our special issue addresses both the medical care of gays and lesbians as well as unique issues confronting gay and lesbian medical students and physicians. The reader will find articles that deal with the primary care needs of the gay and lesbian patient, how to create a medical office environment that accepts diversity in sexual orientation, and two articles on

medical management issues in the HIV-positive patient: one on the work-up of the HIV-positive patient with an intracranial mass and one on taste and smell abnormalities in HIV-positive patients. We are also pleased to offer articles on medical school admission of gays and lesbians as well as two concerning the special challenges facing the gay and lesbian medical student and house officer. Two of our authors are from Louisiana State University, the remainder from North Carolina.

I've learned two important lessons while preparing this special issue. First *gay and lesbian medicine is not only about AIDS*. There are a variety of important and unique medical issues involving sexuality, primary care needs, childbearing and childrearing, and aging in this population group. Second, *gay and lesbian medicine is an important topic—worthy of the attention of most clinicians*. I didn't know much about it before guest editing this special issue of the *North Carolina Medical Journal*. I now appreciate that there was a gap in my initial and continuing medical education concerning this topic. I hope this special *Journal* introduces many of our readers to the subject and prompts further reading and study. As always, I invite letters from readers who want to participate in a continuing discussion of the topic.

And if you want to be invited along for my next stroll with Dr. Stead, do drop me a line. □

## Find the Journal on the Internet at:

<http://www.medicine.mc.duke.edu/ncmedj>

Our side includes:

- ◆ general information about the *Journal*,
- ◆ author's guidelines and submission information,
- ◆ a recap of the current issue (featuring the full text of several articles),
- ◆ an up-to-date index, and
- ◆ advertising rates and specifications

Our page remains "under construction" so that we may update it to coincide with print deadlines. We encourage readers to provide us with feedback on how we can improve our website. We welcome comments by mail (Box 3910, Duke University Medical Center, Durham, NC 27710) or via e-mail: [yohn0001@mc.duke.edu](mailto:yohn0001@mc.duke.edu)

## About the Cover: *Pink Houses, Pink Triangles*

Jeanne C. Yohn, Managing Editor

Finding a visually attractive and topically appropriate cover for the *Journal* reminds me of a maxim I often heard while editing a homebuilding magazine: You can't build the structure without first laying a solid foundation.

For this issue, our first step was to find an image that would clearly convey the different aspects of gay and lesbian medicine, yet also provide a basis for reader recognition. After conferring with editors Drs. Neelon and Halperin and bending the ears of several contributing authors, we settled on an adaptation of an image found during a journey through the Internet: an inverted pink triangle surrounding the staff of Aesculapius.

These two images are pervasive in both their respective cultures and in literature. *Journal* readers know the symbol long associated with medicine and the healing professions. They may be less likely to know that the pink triangle—one of the symbols of the modern gay rights movement—has its origins in the Nazi regime.

During World War II, many individuals interned at German concentration camps wore badges based on the reason for their imprisonment. A triangular swatch of pink cloth—often larger than triangles worn for other crimes—was used to identify men convicted of homosexuality, then considered a crime according to the Reich

Penal Code. In the late 1960s, the gay community in the United States reclaimed this icon as a symbol of empowerment and remembrance of the suffering and persecution homosexuals suffered during this tragic period.

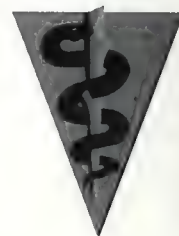
With the blessing of Steve Taravella, associate director of the Gay and Lesbian Medical Association, and Dr. Mark Townsend, a contributing author and coeditor of the GLMA's new journal, we decided to adapt the logo for cover use. Our next tasks were to execute artwork, choose typography, and select complementary colors—all integral building blocks in cover production.

Our budget presently does not permit the luxury of having an art director on staff who can translate our diverse editorial content into a visual blueprint. However, we have forged working relationships with several talented artists whose palettes range from watercolors to computer animation. This issue, like last month's, was rendered by Candy Webster, a computer artist at Gerygraphics Electronic Imaging Services in Durham. We hope you like the result.

Of course we encourage readers to submit examples of professional-quality, black-and-white or color artwork or photographs for future cover construction. Just write to me at Box 3910, DUMC, Durham, NC 27710.



# Primary Medical Care of the Gay or Lesbian Patient



Elizabeth J. Rankow PA-C, MHS

Estimates of the fraction of the population that identifies itself as gay or lesbian, or engages in homosexual activity, are hotly debated. Because society stigmatizes nonheterosexual orientation, any accurate appraisal is probably impossible. But whatever the numbers, physicians and other health care providers, knowingly or unknowingly, in every clinical setting, see gay and lesbian patients. In addition, they serve the parents, children, and friends of gay men and lesbians.

Quality care for the gay or lesbian patient follows the same standards as those employed for all patients. Routine screening and education for such conditions as hypertension, coronary artery disease, anemia, hypercholesterolemia, and common cancers should be conducted according to accepted standards of care. In addition, special considerations related to a patient's homosexual identity (their self-definition as gay or lesbian) or behavior may go unaddressed if heterosexuality is universally assumed.

In this article, I use the terms gay and lesbian to refer to men and women who form sexual or affectional relationships with others of the same sex. It is important to realize, however, that many people involved in same-sex relationships *may not use these terms to identify themselves*. The words people use to describe themselves, and their choice of whether or not to identify with the words "gay" or "lesbian," are influenced by ethnicity, culture, religion, socioeconomic class, age, and personal history. People who engage in same-sex relationships are as diverse as the population at large, and cross all geographic, economic, racial, religious, age, occupational, political, and other boundaries. They may be married or not; they may consider themselves heterosexual, bisexual, or homosexual. The identity "label" they apply to themselves may not match their sexual behavior, and both identity and behavior may change over time. For clinicians this means that making assumptions about *any* patient may lead to incomplete information and hinder the delivery of optimal care.

## Issues for Women

Lack of accurate information about the health concerns of lesbians has left many clinicians uncertain as to appropriate standards of care for this population. Lesbians themselves are often unaware of their specific health risks and the need for routine screening and preventive services. In addition, many lesbians report that past negative experiences have made them less likely to seek medical attention when a problem arises.<sup>1</sup> Lack of financial resources or insurance coverage, fear of homophobic responses from providers, repercussions resulting from breach of confidentiality, and exclusion or perceived exclusion from public health promotional campaigns may also be barriers to care.

**Breast and cervical cancer.** Like all women, lesbians require regular screening for breast and cervical cancer. Some reports have speculated that lesbians have an increased risk of breast cancer because they have a higher incidence of nulliparity, and possibly higher rates of alcohol consumption and obesity. Existent studies have not adequately surveyed the diversity of the population of women who partner with women, and are therefore not generalizable. Most breast cancers occur in women with no identified risk factors other than age. Breast cancer screening for lesbians should follow the protocol recommendations recognized for all women, modified as necessary based on individual medical and family history. The principal risk for lesbians is that of delayed diagnosis due to lack of access to sensitive and appropriate care.<sup>2</sup>

Lesbians are less likely to receive regular Papanicolaou (Pap) tests than heterosexual women. This has been noted even among lesbians with a past or current history of heterosexual intercourse, multiple sexual partners, or sexually transmitted diseases (STDs).<sup>3</sup> Based on incorrect assumptions about sexual behavior, many clinicians consider their lesbian patients to be at low risk for cervical cancer. Many lesbians, because they have heard that they are "low risk," assume they don't need to worry about regular screening. Lesbians may be less likely to

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Ms. Rankow is a Physician Assistant at Duke's Comprehensive Cancer Center, Box 2949 DUMC, Durham 27710.

get annual Pap tests if they do not need contraception or pre- and postnatal care. Some women avoid pelvic examination because they fear a physically painful procedure, or because they are uncomfortable with the vulnerability involved, particularly when the examination is performed by a male practitioner.

Appropriate screening intervals for Pap tests (as for all clinical tests) should be based on individual exposures and risk behavior, not sexual identity. This means obtaining a detailed sexual history that includes age at onset of sexual activity, number of past and present partners (male or female), history of STDs, exposure to human papillomavirus (HPV) or human immunodeficiency virus (HIV), use of "safer sex" practices, and whether the woman has engaged in sexual activity while under the influence of alcohol or other drugs, or in exchange for money, drugs, shelter, etc. Additional risk factors for cervical cancer such as diethylstilbestrol (DES) exposure and smoking should be evaluated. Lesbians who skip an annual Pap smear often also do not get pelvic examination or other routine care such as blood pressure checks, cholesterol screening, stool guaiacs, and health education counseling. *All women, even those who have never engaged in heterosexual intercourse or who are not currently sexually active, need regular cervical screening and bimanual pelvic examination.*

**STDs.** Women whose sexual partners are exclusively other women appear to have a lower prevalence of STDs. This has led to the incorrect assumption that lesbians—as a group—are at low risk for STDs. However, most lesbians have had some heterosexual contact, and some continue to be sexually active with men on an intermittent or regular basis. In addition, many STDs (for example, chlamydia, bacterial vaginosis, trichomonas, candida, herpes simplex virus [HSV], human papillomavirus [HPV], the hepatitis viruses, and human immunodeficiency virus [HIV]<sup>4-8</sup>) may be passed between female sexual partners. Insufficient research about woman-to-woman transmission leaves us without clear standards of care for the treatment of the female sexual partners of women with the above listed infections. Prevention guidelines are similarly limited. In the case of recurrent infections, or when a woman's partner is symptomatic, she should be examined and cultured. If this is impossible, empiric treatment should be strongly considered. Clinicians should remember that recurrent or resistant vaginal infections may signal immunodeficiency due to HIV infection.

STDs may be spread by direct or fomite (such as sex toy) contact with infected fluids or tissues. For oral-genital or oral-anal contact, household plastic wrap or latex barriers protect against exposure to cervical and vaginal fluids, menstrual blood, blood resulting from microscopic tears in the vaginal

lining, fecal-borne pathogens, and HPV or HSV lesions. Lubricant on the the side of the barrier in contact with the genitalia increases sensation, and thereby increases user compliance. Only water-based lubricants should be used with latex or plastic wrap, because oil-based products may degrade the integrity of the barrier. Ideally, sex toys should not be shared, however if this is not possible they should be well cleaned or covered with a fresh condom if they are shared between partners, or before moving from rectum to vagina. Intact skin provides a good barrier against infection, but in case of cuts or abrasions, latex gloves or finger cots may be used to protect the hands. Direct genital-to-genital stimulation (tribadism) can lead to mucosal exposure to blood, sexual fluids, or genital lesions making it an unsafe practice; genital rubbing against the intact skin of the thigh is safer. Women engaging in vaginal or anal intercourse with a male partner should be advised to use a condom and spermicide with every encounter.

Anticipatory guidance about "safer sex" can provide a less threatening way for clinicians to begin discussion of sensitive topics such as sexual activity. People's general awareness of the

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“(A)wareness of the AIDS epidemic has normalized conversations (about sensitive topics) in the medical setting. Providers must become knowledgeable about the full range of human sexual behavior and be comfortable discussing it in vernacular as well as clinical terms, and in an informed and nonjudgmental fashion.”

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AIDS epidemic has normalized such conversations within the medical setting. Providers must become knowledgeable about the full range of human sexual behavior and be comfortable discussing it in vernacular as well as clinical terms, and in an informed and nonjudgmental fashion.

**HIV and AIDS.** Most lesbians infected with HIV are reported to have acquired the virus through injection drug use.<sup>9</sup> Clinicians should refer the patient for treatment of chemical dependency and provide information about the importance of not sharing needles or other drug paraphernalia (or at least cleaning these devices well with sodium hypochlorite bleach [Clorox] and water between use by different injecting partners). Lesbians are also at risk of contracting HIV through unprotected sexual activity with male or female partners. The presence of a concomitant untreated STD increases transmission risk. The medical literature reports only isolated instances of woman-to-woman transmission of HIV, but grassroots lesbian AIDS projects are documenting growing numbers of HIV-positive women whose only risk factor was exposure through an HIV-positive female sexual partner.<sup>3</sup> It is likely that as prevalence of HIV among lesbians increases, so too will rates of female-to-female transmission. Health education messages must combat the dangerous myth of lesbian "immunity" to HIV and other STDs. Too many women, and their health care providers, continue to be unaware of the risk. Prevention efforts must be comprehensive and include information about heterosexual activity, drug-related risks, and female-to-female transmission of HIV.



## Issues for Men

Gay men's health issues have become synonymous with HIV care in the minds of many clinicians. However, AIDS is by no means the only health concern of gay men. Primary care considerations include psychosocial issues, cancer screening, and the prevention and treatment of hepatitis and other STDs.

**HIV and AIDS.** The AIDS epidemic has developed an increasingly female and heterosexual face, but men who have sex with men continue to become HIV-positive in alarming numbers, with youths and nonwhite men at greatest risk. Counseling about sexual harm reduction is an essential component of primary care and health promotion for gay men. "Safer sex" guidelines for men who have sex with men are more accessible than guidelines for lesbians, but are fraught with a similar degree of controversy (see Health Watch, page 119). It is most appropriate to talk about a continuum of risk, and to guide well-informed patients in determining a course of action suitable to their individual situations.

Unprotected receptive anal intercourse (homosexual or heterosexual) is undisputedly the sexual behavior of highest risk for HIV transmission. It can be made safer by the use of latex condoms and a water-based lubricant with spermicide. Mutual masturbation or rubbing the body against a partner's intact skin is generally regarded as a low-risk activity, as is oral-penile contact with a condom. There is disagreement about the risk of oral-penile contact without a condom. Many community-based AIDS organizations, following the lead of their European counterparts, recommend that "oral sex is safer sex" in efforts to reduce the number of men engaging in higher-risk activities.

Research suggests that the "just say no" approach fosters an all-or-nothing attitude, causing people to assume that once they become sexual at all they "have nothing left to lose" and might as well "go all the way." Educating patients and the general public to understand the hierarchy of risk may lead to safer choices being made and a reduction in HIV transmission. Transmission cannot occur when virus is not present, therefore sexual activity between mutually monogamous, seronegative individuals does not require "safer sex" precautions unless other STDs are present.

**STDs.** Manifestations of STD infection vary according to the individual's specific sexual practices. A thorough history is necessary to ascertain which sites require culture (for example urethra, throat, or rectum).

Proctitis and enteric infections are more common in men practicing receptive anal intercourse.<sup>10</sup> Proctitis may be caused by *Neisseria gonorrhoeae*, HSV, *Chlamydia trachomatis*, or *Treponema pallidum*.<sup>11</sup> Noninfectious proctitis may result from trauma or allergy to latex (condoms or gloves) or lubricants used. Enteritis, colitis, or proctocolitis may be caused by *Salmonella*, *Shigellae*, *Campylobacter*, *Entamoeba histolytica*, *Giardia lamblia*, or *Cryptosporidium*. Gastrointestinal patho-

gens may be transmitted through oral-anal contact with an infected partner.

Important causes of urethritis in gay men include infection with *N. gonorrhoeae*, *C. trachomatis*, and *Ureaplasma urealyticum*.<sup>10,11</sup> Pharyngeal infection with *N. gonorrhoeae* can occur and may be inadequately treated by regimens used for genital infections. Diagnosis of any STD implies the possibility of exposure to other agents, including HIV. Patients and their sexual partners should be evaluated and counseled accordingly. Furthermore, the presence of untreated STDs demonstrably increases the risk of HIV transmission.

All forms of hepatitis may be transmitted between male partners. Sexually active gay and bisexual men who have negative serological tests for hepatitis should receive the full course of hepatitis B vaccine.<sup>10,11</sup> Hepatitis A exposure may be treated with the standard protocol of immune globulin injection. In all men who have sex with men, the genital, anal, and perineal areas should be inspected for ulcerations, abrasions, fissures, abscesses, fistulas, thrombosed hemorrhoids, or manifestations of HSV or HPV (venereal warts) infection.

**Anal cancer.** Gay men, and particularly those who are HIV-positive, are at risk for anal cancer related to HPV infection. Standards of care have not been developed, but some authorities recommend annual anoscopy and periodic cytologic screening for atypia of the anal mucosa in high-risk patients. Routine digital rectal examinations are also recommended. Signs and symptoms of anal cancer include perineal pain or a sensation of pressure, a change in bowel habits, anal discharge or pruritus, the passage of small amounts of blood, or the presence of a mass.<sup>11</sup>

## Mental Health and Social Issues

Mental illness is no more common among lesbians and gay men than among heterosexuals, but these individuals do have unique stresses and concerns related to their stigmatized status in society. Gay and lesbian people are often the victims of hate crimes including verbal or physical abuse or attack, damage to property, sexual assault, or murder. They may be rejected by family, friends, religious community, coworkers, or schoolmates; may be denied housing, child custody, employment, health care, or legal representation. Equally devastating are the effects of internalized homophobia, which can lead to low self-esteem, isolation, depression, suicidality, or self-harmful sexual or substance-using behaviors.<sup>3,11</sup>

## Coming Out

"Coming out" is the continuum process in which an individual recognizes his or her nonheterosexual orientation. The stages of coming out have been well described in the medical literature, but the process remains unique for each individual. Coming out

may occur in youth, young adulthood, during midlife, or in later years. Some individuals never acknowledge their orientation to others, or perhaps even to themselves. Others may acknowledge their sexual orientation, but never reach self-acceptance and affirmation. The process of coming out as gay or lesbian can be extremely stressful at whatever stage of life it occurs. On the other hand, many individuals feel a sense of "coming home" and of their lives finally "making sense." A thorough and sensitive history is needed to ascertain the issues of concern for each patient.

## Substance Abuse

As with other highly stressed or marginalized populations, lesbians and gay men are at risk for the use or abuse of cigarettes, food, alcohol, and other drugs. The patient interview should quantify use of any potentially addictive substance. Although the prevalence of addictive behaviors has been posited to be greater among sexual minorities than among heterosexuals, the research samples studied have not been representative of the population as a whole. Most likely, usage varies among subpopulations of homosexuals, as it does for other communities.

Treatment services for recovery from addiction and chemical dependency must be sensitive to the needs of gay and lesbian clients. Gay and lesbian support groups allow clients to discuss honestly the issues that affect their lives, and to develop effective strategies for coping with the situations that place them at risk for substance use. Family services should involve the domestic partner and significant others within the client's social network. Both residential and outpatient treatment programs are increasingly available, as are 12-step groups for lesbians and gay men.

## Effects of Stress on Health

The high level of stress that accompanies a stigmatized identity may lead to stress-related illnesses. Gastric complaints, allergies, headaches, and back pain can all be exacerbated by stress, and often form the presenting complaint in the primary care setting. Careful questioning may reveal an underlying concern that must be recognized and dealt with in order to successfully address the physical condition.<sup>3,11</sup>

## Gay and Lesbian Families

Gay and lesbian families may include an intimate life partner, a previous spouse or romantic partner, an extended network of friends and associates, and members of the family of origin.

Assessment of the presence and quality of the supportive relationships available to the patient is part of a thorough social history.

Many lesbian and gay families include children from the previous heterosexual relationships of one or both partners, or through adoption, foster parenting, donor insemination, or heterosexual intercourse for the purpose of conception. Primary care clinicians may be consulted for fertility testing, insemination, and prenatal and pediatric care. Women planning self-insemination with fresh semen donated by a friend or acquaintance should be advised about the potential for HIV transmission. Many lesbians have historically relied on sperm from gay male friends, often forming extended family networks based on these relationships. Potential sperm donors should have had two consecutive negative HIV tests six months apart, with no intervening risk activity. Commercial sperm banks may offer a more carefully screened product, but they may be inaccessible either because of cost, or because of policies discouraging lesbian clients.

Children raised in gay or lesbian households are no more likely to be homosexual than children raised by heterosexual parents. Numerous studies have found no evidence to suggest

that the psychosocial development of these children is compromised in any way relative to that of the children of heterosexuals.<sup>12</sup> In some instances guidance may help both children and their families deal with societal homophobia and the potential negative reactions of school-

mates or teachers. Referral to gay and lesbian parenting organizations or the suggestion of relevant books can be helpful (see Appendix, page 98).

## Loss of a Partner

The loss of a partner through death or separation is painful for anyone. Lesbians and gay men often must bear this pain in silence and without the institutional, family, or community support available to heterosexuals. Associates and family members who are unaware of the nature of their relationships may not understand why a friend or relative is so upset over her or his "roommate" moving out, or the depth of grief over the death of someone who was "just a friend." Clinicians can offer guidance and support throughout the grieving and readjustment process, and assist the patient in identifying individual and organizational resources that might provide needed assistance.

Since there is no legal recognition of homosexual relationships, there are no clear boundaries of legal protection to assist with separation as there are in the case of heterosexual divorce. Legal protection of inheritance for a surviving partner is also nonexistent. Patients should be encouraged to consider these issues and prepare legal documentation of their wishes regarding the disposition of property.

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"The high level of stress that accompanies a stigmatized identity may lead to stress-related illnesses."

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## Gay and Lesbian Youth

Adolescence is a time of exploration, experimentation, transition, and self-discovery. The tasks of adolescence include achievement of identity, development of self-esteem, development of social skills, and the formation and maintenance of personal relationships. It is a difficult passage for any young person and for their families. Renegotiating family relationships, power dynamics, roles, and self-concept can be immensely stressful. In this setting, the process of discovering and accepting one's self (or one's child) as a member of a stigmatized minority can interrupt or impede the developmental process. Lesbian and gay youth must negotiate these developmental tasks without the benefit of supportive societal institutions, role models, and the rituals of passage and celebration available to their heterosexual peers. Sexual minority youth are engaged in two simultaneous processes: growing up and "coming out."

Lesbian and gay youth are at least three times more likely to commit suicide than are their heterosexual peers.<sup>13</sup> Many attempt to hide or change their sexual orientation by dating people of the opposite sex, even (intentionally or unintentionally) conceiving a child. They may make themselves "too busy" with involvement in school and extracurricular activities to date, or they may withdraw entirely. Many fail to develop close and trusting relationships because they fear they cannot relate honestly with peers without risking disclosure. They suffer isolation, which often leads to depression and despair. Sexual minority youths are at increased risk of homelessness, either because they run away from abusive situations or because they are thrown out of the home. Once on the street, they are at high risk for violence, rape, drug and alcohol use, STDs, and AIDS. They are more likely to engage in "survival sex" in exchange for money, food, shelter, and drugs.<sup>14</sup>

## Gay and Lesbian Elders

Older lesbians and gay men may have "come out" in their youth, at midlife or in later years. Some self-identify as lesbian or gay, but others never adopt these labels despite a lifetime with same-sex partners. Individuals whose cultural values or social environment enforce silence about their relationships may be at compounded risk of isolation. Some gay men and lesbians who come out later in life fear rejection by their children or grandchildren, should family members learn of their homosexuality. The stress of hiding this information may have a negative effect on intimate relationships and self-esteem.

The limited research published on older lesbians and gay men identifies the key issues of concern as discrimination based on sexual orientation, loneliness, financial worries, age discrimination, and health. However, many of these individuals report that their gay identity makes the aging process easier because they can draw on skills of self-reliance and psychological self-knowledge that they developed as part of accepting themselves in their "coming out" process.<sup>15</sup>

## Conclusions

Lesbians and gay men have unique health concerns that may go unaddressed when heterosexuality is assumed. By approaching all patients with openness and respect, clinicians will optimize the quality of care they deliver. Communication will be enhanced and diagnoses will be more accurate when guided by honest discussion of relevant factors. Compliance will benefit from improved rapport and through involving the patient's significant others in treatment plans. By offering care that is well-informed, inclusive, and respectful of diversity, all patients are better served. □

**Acknowledgment:** Portions of this article were adapted from a handbook on lesbian health for primary care providers: Rankow EJ. *Women's Health Issues: Planning for Diversity*. Available from the National Lesbian and Gay Health Association, Washington, DC, 202/939-7880.

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## *An Inclusive Approach to Primary Care Recognizes the Needs of Gay Men and Lesbians*

By demonstrating openness and acceptance, clinicians create an environment that fosters good rapport and the disclosure of information necessary for accurate diagnosis and treatment. Using inclusive language on medical history forms and during the patient interview sends a message of receptivity that provides the clinician with rich information about the important people in the lives of all patients—homosexual or heterosexual. It is better to ask about a patient's "partner" or "significant relationship(s)" rather than "husband" or "wife." It is better to ask if the patient is sexually active, and if so, "with men, with women, or both," and to avoid the assumption that all sexual activity supposes a need for birth control. (See "Inclusive Language for Patient Interviews," next page.)

Even waiting rooms and exam rooms offer the opportunity to send a message. Magazines and other materials can reflect the diversity of the community the office serves. Images on posters and other decoration should depict people of varied race/ethnicity, age, and family configurations. Brochures and other patient materials should likewise promote inclusivity. Some offices post a nondiscrimination policy in plain view: *"We do not discriminate on the basis of race, national origin, gender, language, income, age, sexual orientation, education, or disability."* A tone is set long before the physician and patient come face to face; it can either work for the patient and doctor or against.

Creating a welcoming clinical environment for gay and lesbian families requires sensitivity. Some couples and individuals will present openly as gay men or lesbians seeking pediatric services. Others, fearing compromised care or the potential loss of custody, may hide their sexual orientation. By signaling an awareness and acceptance of all families, clinicians can create an environment of safety that encourages disclosure. Using open-ended and gender-neutral questions, and inviting the participation of a significant other can be helpful. A partner who is coparenting the child(ren) should be treated with the same respect as the spouse of a heterosexual patient. Legal documents empowering the partner to make medical decisions regarding the couple's children should be completed, and copies entered into the medical record. Without this, the nonbiological (or nonadoptive) parent will be powerless to care for the children in case of illness or emergency. Wills should state who is to receive custody and raise the children if the legal parent dies. In addition, all patients should be encouraged to file a durable power of attorney for health care that grants emergency decision-making and next-of-kin status to a significant other. Same-sex relationships have no legal protection, and too often lesbians and gay men are denied access to or information about hospitalized or incapacitated loved ones.

When providing care to gay adolescents, consider the accessibility of clinic location and hours of operation, as well as billing procedures and the cost of services. Many young people avoid needed medical care, including STD testing and treatment, because they fear an incriminating insurance claim being posted on their parents' policy, or a health care

provider revealing their sexual orientation or other personal information. By providing the requisite confidentiality, clinicians can offer youth an opportunity to discuss issues of concern and receive needed information and support.

Youth must be helped to respect themselves, and to develop the skills and self-esteem necessary to negotiate good choices about drug use and sexual activity. Many gay and bisexual young men describe a feeling of inevitability about HIV infection. They may engage in high-risk behaviors to "get it over with" and eliminate the stress of not knowing when they will be infected. Young women who partner with women may have heard that "lesbians don't get AIDS" and wrongly assume they are not at risk regardless of their behaviors.

Individuals who identify themselves as gay or lesbian may still be heterosexually active (often with other gay or bisexual people), and those who identify themselves as heterosexual may have a past or present history of same gender sexual activity. It is important, therefore, to make inclusive and comprehensive information and guidance about risk reduction available to all youth. Remaining open to the full spectrum of behavior without making judgments or assumptions about identity can be a delicate balance. Communication may be helped by phrases such as *"You may or may not ever need this information [about contraception or sexual harm reduction] for yourself, but now you'll have accurate information to share with your friends and correct some of the myths that are out there,"* or *"Many people have questions about...[fill in the blank: safer sex, sexual orientation, sexual activities, etc.]...they don't realize that..."* [supply correct information]. This approach reassures patients that their questions and experiences are normal and shared by many people. It offers young people an opening to receive needed guidance without having to divulge specific behaviors or admit ignorance. Empowering youth with accurate and complete knowledge helps them make informed choices and allows them to serve as educators and resource people for their peers. The clinician's willingness and ability to offer well-informed and affirming care to sexual minority youths and their families is a valuable health intervention.

Family members who learn that their child or other loved one is not heterosexual may also need support. Parents, siblings, and other relatives may enter a "closet" of their own, experiencing feelings of anger, shame, disgust, fear, or self-blame. Providing a nonjudgmental environment for the honest discussion of concerns, and referral to family support organizations can be a vital step. Remember that homosexual identity or behavior carries different meaning and repercussions in different cultural contexts. The ethnic origin, socioeconomic class, and religious background of each family must be considered in order to adequately address concerns.

For all patients, a thorough history is the best tool in determining the important relationships, social supports, health risks, and concerns of each individual.



## *Inclusive Language for Patient Interviews*

### **Ask about relationships:**

- ✓ Are you involved in a significant relationship?
- ✓ Tell me about your living situation. Who shares the household with you?
- ✓ Tell me about the people who are important to you. Where do you get the most support?
- ✓ Are your relationships satisfying? Are there any concerns you'd like to discuss?

### **Ask about behaviors:**

- ✓ Are you sexually active? With men, with women, or with both?
- ✓ Have your sexual partners in the past been men, women, or both?
- ✓ Do you have any need to discuss birth control?
- ✓ How are you dealing with the issues of "safer sex" and the risks of sexually transmitted diseases?
- ✓ Are there any questions or concerns that you would like to discuss?

### **Be informative and reassuring**

It is helpful to preface sensitive questions with an explanation about how the information guides appropriate care and to reassure your patient about confidentiality. An example of such an explanation is as follows:

*"People who are at risk for different diseases need different tests depending on their activities now and in the past. I need to ask you some personal questions that I ask all my patients about sexual activity. This helps me give you the best care, tailored to your specific needs. Everything you tell me will be kept in confidence."*

An introduction like this can be followed by detailed questions about specific sexual practices; age at first intercourse; number and gender of past and present partners; any history of bartering sex for money, drugs, food, or shelter; sexual activity while under influence of drugs or alcohol; history of sexually transmitted diseases; reproductive history; exogenous hormone use; etc.

## **Appendix:**

## ***Gay and Lesbian Resource Organizations***

These national organizations can provide information, services, and often referral to state and local resources.

National Lesbian and Gay Health Association  
1407 S St., NW  
Washington, DC 20009  
202/939-7880

Gay and Lesbian Medical Association  
(formerly: American Assn. of Physicians for Human Rights)  
211 Church St., Suite C  
San Francisco, CA 94114  
415/255-4547

Natl. Assn. of Lesbian and Gay Alcoholism Professionals  
1147 S. Alvarado St.  
Los Angeles, CA 90006  
213/381-8524

Committee on Gay and Lesbian Issues  
of the American Psychiatric Association  
1400 K St., NW  
Washington, DC 20005  
202/682-6097

National Gay and Lesbian Task Force  
2320 17th St., NW  
Washington, DC 20009  
202/332-6483

Parents and Friends of Lesbians and Gays (P-FLAG)  
1011 14th St., NW, Suite 1030  
Washington, DC 20005  
202/638-4200

Gay and Lesbian Parents Coalition International  
P.O. Box 50360  
Washington, DC 20091  
202/583-8029

National Youth Advocacy Coalition  
1711 Connecticut Ave. NW, Suite 206  
Washington, DC 20009  
202/319-7596

Lambda Legal Defense and Education Fund  
666 Broadway, 12th Floor  
New York, NY 10012  
212/995-8585

CDC National AIDS Hotline: 800/342-AIDS  
(Spanish: 800/344-SIDA; TDD: 800/243-7889)

AIDS Clinical Trials Information Service:  
800/TRIALS-A, 800/874-2572

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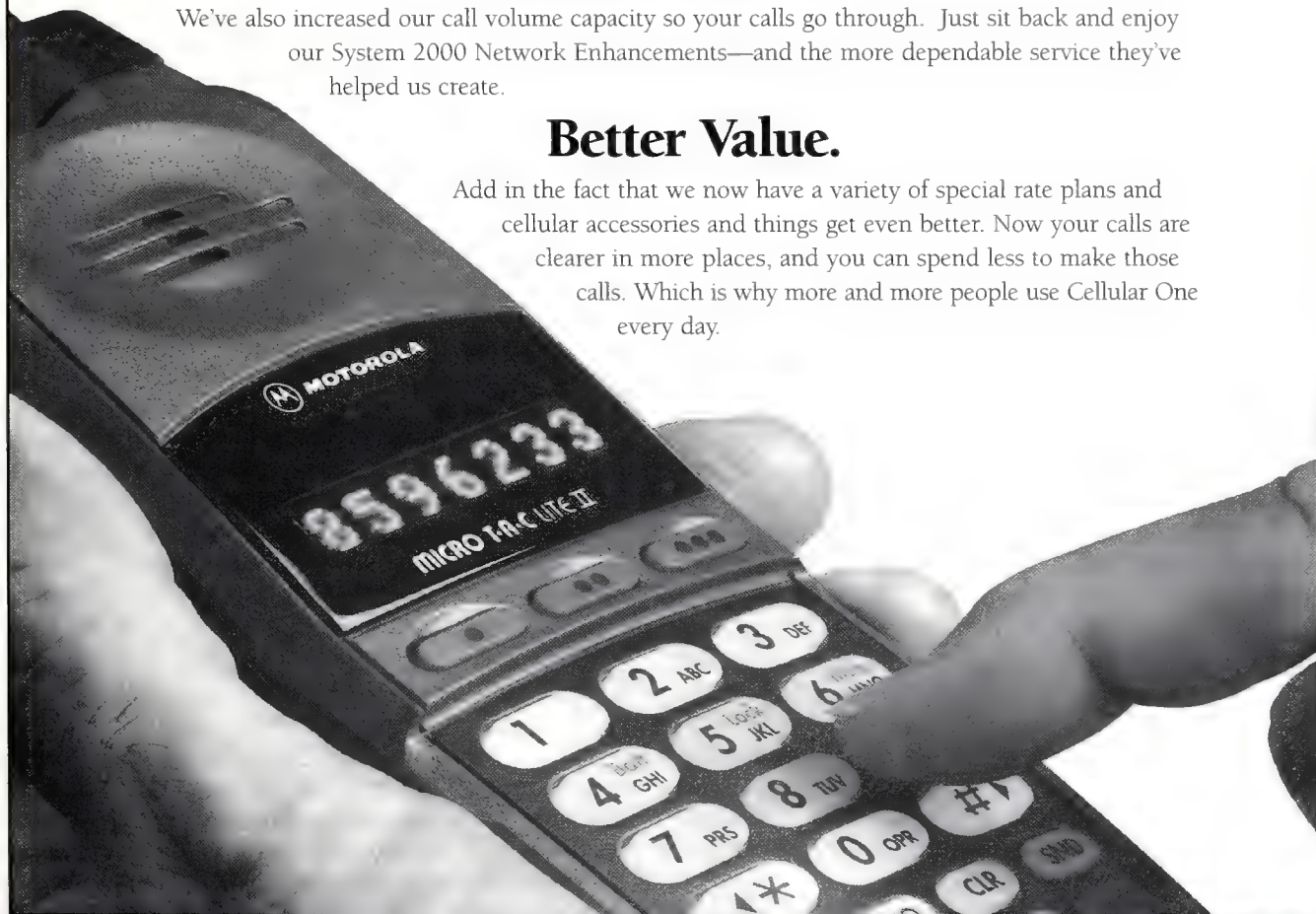
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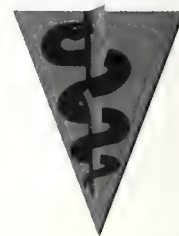
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# Taste and Smell

## Neglected Senses That Contribute to the Malnutrition of AIDS



Alison E. Heald, MD, and Susan S. Schiffman, PhD

Malnutrition and weight loss are characteristic symptoms of HIV infection and AIDS.<sup>1</sup> Weight loss may be a result of undernutrition or of cachexia, the pattern of wasting associated with malignancy, chronic disease, or chronic infection. Cachexia includes a component of hypermetabolism so that weight loss occurs even with adequate or increased nutrient intake. Cachexia is characterized by loss of lean body mass and increased cytokine (tumor necrosis factor, interleukin 1, interleukin 6) production; resting energy expenditure and metabolic rate are increased or normal.

Undernutrition, on the other hand, occurs as a result of reduced oral intake or malabsorption (which makes nutrients unavailable). Undernutrition in AIDS may lead to macronutrient deficiency (protein-calorie malnutrition), but micronutrient deficiency can also occur. In undernutrition, compensatory mechanisms come into play—the metabolic rate decreases and body fat is used preferentially, with sparing of lean body mass. HIV-associated wasting is an increasingly common initial manifestation of AIDS,<sup>2</sup> and nearly everyone dying of AIDS experiences wasting at the end.

Calorie intake (and, therefore, nutritional status) is known to be affected by the senses of taste and smell.<sup>3</sup> Disturbances of these chemosensory functions occur in many diseases, including HIV infection. Chemosensory disorders may play a primary role in the pathogenesis of HIV-associated wasting, or a secondary role leading to further compromise of nutritional status.

Perceptions of taste and smell normally initiate what are called cephalic phase reflexes, a series of physiologic events that optimize nutrient absorption from the gastrointestinal tract. Cephalic phase reflexes lead to increased salivary secretion, increased gastric secretion of pepsinogen and hydrochloric

acid, augmented pancreatic endocrine and exocrine function, and improved absorption of sucrose.<sup>4</sup> Since the senses of smell and taste normally play a major role in the optimal utilization of nutrients, chemosensory losses and distortions may impair nutritional status in HIV-infected patients.

### Normal Taste and Smell

To understand alterations in taste and smell, we need to review the anatomy and physiology of these senses. Taste is mediated through the taste buds, each of which consists of 40-50 modified epithelial cells arranged to form pear-like structures distributed over the tongue and pharynx. The tips of the taste cells are arranged around a taste pore. Several microvilli or "taste hairs" protrude outward from the tip of each cell into the taste pore and provide the receptor surface for taste. Taste cells are constantly being renewed, and have a life span of about 10 days. Adults have about 10,000 taste buds, most of which are found on the tongue on small structures called papillae. The circumvallate papillae form a V-like pattern on the back of the tongue. The fungiform papillae are scattered over the anterior surface of the tongue, and the foliate papillae are located in clefts on the side of the tongue. (The filiform papillae covering the tongue do not contain taste buds.) Additional taste buds are found on the soft palate, pharynx, larynx, epiglottis, uvula, and upper esophagus.

Taste buds use several pathways to transmit sensations to the central nervous system (Figure 1A, next page): those on the anterior two-thirds of the tongue use the chorda tympani of the facial nerve (seventh cranial nerve); those on the posterior tongue and mouth, the lingual branch of the glossopharyngeal nerve (ninth cranial nerve); those on the epiglottis and larynx and upper esophagus, the vagus nerve (tenth cranial nerve). Taste impulses travel over these cranial nerves to the nucleus of the solitary tract in the medulla. From there, they project to the thalamus and then to the cortical taste area, located in the lower

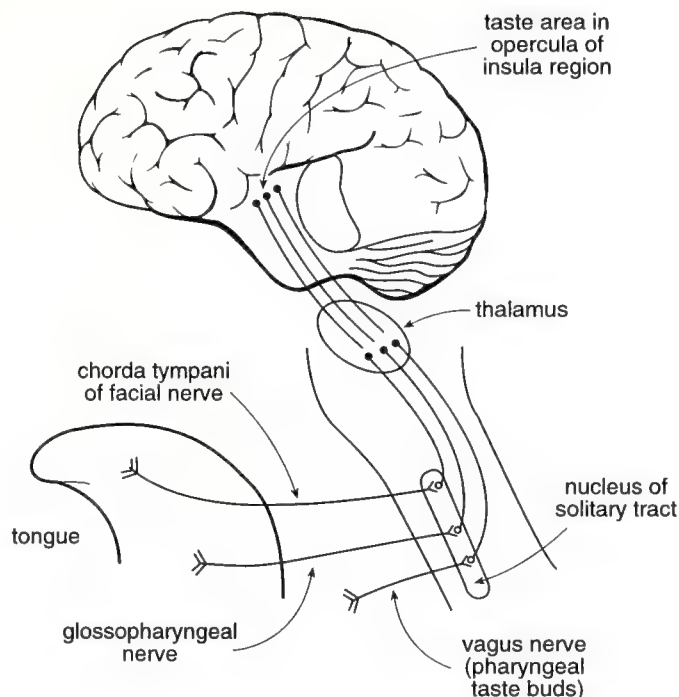
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tip of the post central gyrus and opercularinsular area of the parietal cortex.

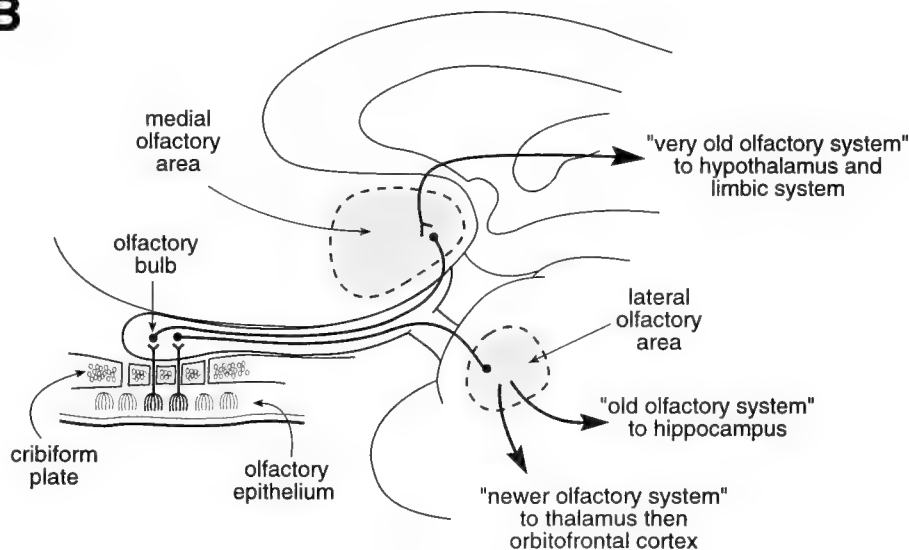
The sensory receptors for smell lie in the olfactory membrane, which lines the superior part of each nostril. The olfactory cells are bipolar nerve cells derived directly from the central nervous system; 100 million of them lie interspersed between supporting cells in the olfactory membrane. The mucosal end of the olfactory cell forms a knob from which 6-12 olfactory hairs or cilia project into the mucus coating the nasal membranes. Like taste cells, the olfactory cells are constantly being renewed, with a life span of about 30 days. Olfactory cells are depolarized when odorant substances bind to protein molecules protruding through the membrane of cilia.

Nerves from the olfactory epithelium (Figure 1B, at right) pass through the cribriform plate of the ethmoid bone to form connections in an outgrowth of brain tissue called the olfactory bulb (first cranial nerve). From the olfactory bulb, the olfactory tract enters the brain and divides into two pathways leading to the medial and lateral olfactory areas. The medial olfactory area, located in the midbasal portions of the brain anterior and superior to the hypothalamus, forms what in evolutionary terms is called the "very old olfactory system." It controls basic olfactory reflexes like licking the lips and salivating in response to smell. The lateral olfactory area, located in the prepyriform and pyriform cortex and the cortical portion of the amygdaloid nuclei, forms an "old olfactory system" and a "newer olfactory system." The "old olfactory system" subserves learned likes and dislikes of food, including aversion to toxic and unhealthy foods. The "newer olfactory pathway" allows for conscious analysis of odor.

**A**



**B**



**Fig 1:** Neural connections of taste (A) and smell (B)

## Taste and Smell Losses in HIV Infection

Several recent reports have found that smell sensation may be lost in HIV infection.<sup>5-9</sup> Brody et al<sup>5</sup> measured the ability of 42 HIV-infected patients to identify odors and compared their performance to that of 37 healthy age- and sex-matched individuals. They used the University of Pennsylvania Smell Identi-



tification Test, which evaluates the ability of subjects to identify common odors using a four-item word list. HIV-infected patients (both asymptomatic and symptomatic) scored significantly lower than control subjects.

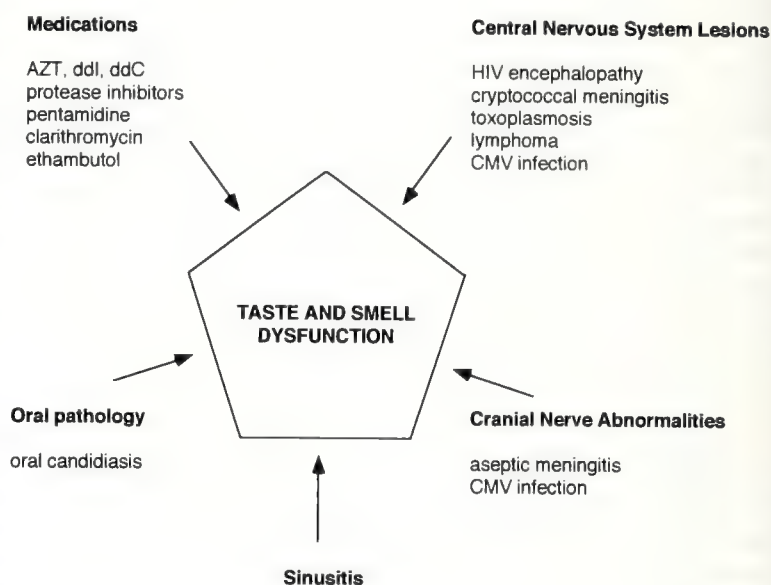
Hornung et al<sup>6</sup> used the Pennsylvania test to study 50 HIV-infected patients. They concluded that 16 of their subjects were either hyposmic (had reduced sense of smell) or anosmic (had no sense of smell). Reduced olfactory perception was not related to age, presence of symptoms, presence of fatigue, HIV risk-factors, or CD4+ lymphocyte count.

Razani et al<sup>7</sup> found that the threshold for butanol detection was elevated in 15 patients with AIDS dementia compared to 15 HIV-infected patients without dementia and 19 HIV-negative subjects. Lehmer et al<sup>8</sup> found mild impairment of odor identification, odor memory, and perception thresholds for butanol in 18 HIV-infected subjects with CD4 cell counts of 240/mm<sup>3</sup> to 700/mm<sup>3</sup> and 19 HIV-infected subjects with <170 CD4 cells/mm<sup>3</sup> compared to 18 controls. Olfactory impairment seemed to increase as immunodeficiency worsened.

In a study of 25 healthy HIV-infected subjects with CD4+ lymphocyte counts below 100, Mattes et al<sup>9</sup> noted some combination of chemosensory alteration in 72% (increased sensitivity in 32%, decreased sensitivity in 32% and distortions of sensation in 32%). Seventy percent of patients with taste disorders indicated that one of the medications they were using exacerbated their problem, but there were no significant differences between patients and controls in taste identification ability or intensity ratings. Three HIV-infected subjects had markedly decreased odor identification scores, but the group mean was similar to controls.

We recently evaluated<sup>10</sup> the degree to which 40 subjects infected with HIV had lost taste and smell function compared to 40 healthy subjects matched for age, sex, race, smoking behavior, and number of years of education. Chemosensory evaluation consisted of: detection of taste and smell thresholds; tests of taste and smell memory, tests of taste and smell discrimination; and taste and smell identification tasks. These tests allowed us to evaluate both peripheral and central nervous system components of chemosensory functioning (threshold experiments provide information about the viability of peripheral taste and olfactory nerves and receptors; recognition memory, discrimination, and identification experiments assess central chemosensory processing in the hippocampus, amygdala, and piriform cortex). We found highly significant differences between experimental and control subjects in taste detection thresholds for glutamic acid and quinine hydrochloride, in smell detection threshold for menthol, and in the taste identification task. Overall, the results suggest abnormalities in both the peripheral and central nervous systems, as well as subjective

“Oropharyngeal candidiasis and other oral disorders can cause of loss of taste. Opportunistic infections and neoplasms of the nervous system may affect taste and smell.”



**Fig 2:** Causes of taste and smell losses in HIV infection

distortion of taste and smell. We did not establish a significant correlation between CDC classification of HIV infection severity and taste and smell function, but trends did suggest that function worsens as HIV disease progresses.

## Medication Use and Loss of Taste and Smell

Studies demonstrating the presence of taste and smell abnormalities in HIV-infected patients do not elucidate the reasons for these losses. In fact, the reasons are probably quite diverse (Figure 2, above), although both experimental and clinical reports indicate that medications are a major cause of chemosensory dysfunction.<sup>11</sup> HIV-infected persons certainly need and use multiple medications. One study<sup>12</sup> showed that patients with AIDS used an average of 7.1 drugs per month on a regular basis (14% of them used more than 10) in addition to the medications given as part of the study protocols. Patients with AIDS-related complex or with asymptomatic HIV infection

used 3.1 and 2.7 medications per month, respectively.

Many drugs prescribed for HIV-infected patients have been associated with taste losses (Table 1, right). Antimicrobial drugs such as amphotericin B, ampicillin, metronidazole, and tetracyclines can cause a loss or distortion of taste.<sup>11</sup> Nebulized pentamidine, used as prophylaxis and treatment for *Pneumocystis carinii* pneumonia, can cause a metallic taste.<sup>13</sup> All protease inhibitors cause significant taste distortions.<sup>14</sup>

Medications alter taste perception in several ways.<sup>11</sup> They may be secreted into the saliva at levels high enough to adversely modify the normal mechanism of taste sensation production and transmission, or they may produce a taste of their own. Taste mechanisms subject to alteration by drugs include sodium channels, potassium channels, and the adenylylate cyclase and phosphatidylinositol second messenger systems of taste buds. Furthermore, medications may cross the blood-brain barrier to directly affect impulse processing in the nucleus of the solitary tract; they may modify the permeability of taste cell membranes; or they may alter the turnover of taste or smell cells.

## Other Reasons for Loss of Taste and Smell in HIV Infection

Figure 2 shows a variety of causes of abnormal taste and smell function in HIV-infected patients. HIV-infected patients often have sinusitis, which diminishes the sense of smell by blocking

nasal passages. Oropharyngeal candidiasis and other oral disorders can cause loss of taste.<sup>15</sup> Opportunistic infections and neoplasms of the nervous system may affect taste and smell. A form of HIV encephalopathy that preferentially affects the amygdala, hippocampus, and frontal and temporal cortex may alter smell and taste perception.<sup>16</sup> Some studies have found that loss of olfaction is more pronounced in patients with AIDS dementia. Finally, cranial and peripheral neuropathies capable of disrupting chemosensation may result from HIV infection directly, or from secondary infections such as cytomegalovirus.

**Table 1: Taste disorders associated with HIV medications**

<u>Classification/use</u>	<u>Medication</u>	<u>Taste disorder</u>
<b>Antiretrovirals</b>	Zidovudine (Retrovir <sup>TM</sup> )	Taste perversion <sup>14</sup>
	Didanosine (Videx <sup>TM</sup> )	Taste perversion <sup>14</sup>
	Zalcitabine (Hivid <sup>TM</sup> )	Decreased taste, loss of taste, taste perversion <sup>14</sup>
	Stavudine (Zerit <sup>TM</sup> )	
	Lamivudine (EpiVir <sup>TM</sup> )	
<b>Antivirals</b>	Acyclovir (Zovirax <sup>TM</sup> )	Medication taste <sup>14</sup>
	Ganciclovir (Cytovene <sup>TM</sup> )	
	Foscarnet (Foscavir <sup>TM</sup> )	
<b>Protease inhibitors</b>	Saquinavir (Invirase <sup>TM</sup> )	Taste alteration <sup>14</sup>
	Ritonavir (Norvir <sup>TM</sup> )	Taste perversion, anorexia <sup>14</sup>
	Indinavir (Crixivan <sup>TM</sup> )	Taste perversion <sup>14</sup>
<b>Antibiotics</b>	Trimethoprim/sulfamethoxazole (Bactrim <sup>TM</sup> , Septra <sup>TM</sup> )	
	Pentamidine isethionate (Pentam <sup>TM</sup> , Nebupent <sup>TM</sup> )	Bad (metallic) taste, loss of taste <sup>13</sup>
	Dapsone	
	Atovaquone (Mepron <sup>TM</sup> )	Taste perversion <sup>14</sup>
	Clarithromycin (Biaxin <sup>TM</sup> )	Abnormal taste, taste perversion <sup>14</sup>
	Azithromycin (Zithromax <sup>TM</sup> )	
	Ethambutol hydrochloride (Myambutol <sup>TM</sup> )	Metallic phantogeusia <sup>18</sup>
	Rifabutin (Mycobutin <sup>TM</sup> )	Taste perversion <sup>14</sup>
	Clofazimine (Lamprene <sup>TM</sup> )	Taste disorder <sup>14</sup>
	Pyrimethamine (Daraprim <sup>TM</sup> )	
<b>Antifungals</b>	Sulfadiazine	
	Ciindamycin (Cleocin <sup>TM</sup> )	Unpleasant or metallic taste <sup>14</sup>
	Clotrimazole (Mycelex <sup>TM</sup> )	
	Fluconazole (Diflucan <sup>TM</sup> )	
	Ketoconazole (Nizoral <sup>TM</sup> )	
	Itraconazole (Sporonox <sup>TM</sup> )	
	Amphotericin B (Fungizone <sup>TM</sup> )	Hypogeusia; ageusia; occasional phantogeusia <sup>18</sup>
<b>Anti-inflammatories</b>	Dexamethasone (Decadron <sup>TM</sup> )	Lessened detection of taste differences <sup>19</sup>



## Potential Interventions

The use of flavor enhancers is the most promising way to treat HIV-infected patients whose loss of taste and smell sensation impairs nutrition. Flavor enhancers are preparations of odorous molecules that intensify the natural flavor of foods. These odorous molecules are natural ingredients of food products and concentrated preparations are available commercially. They are primarily odors, are virtually tasteless, and contain no sodium chloride, monosodium glutamate, or sweeteners. Flavor enhancers can be obtained commercially from International Flavors and Fragrances, Givaudan-Roure Corp., Firmenich, Inc.,\* and other companies.

A recent study of elderly retirement home residents with extensive taste and smell loss<sup>17</sup> demonstrated that flavor enhancement led to increased food intake and increased B- and T-lymphocyte counts. For three weeks, 39 elderly (age 84.6±5.1 years) subjects ate either an unenhanced institutional diet or an identical diet enhanced by added intense flavors; after three weeks the diets were reversed. Daily food intake was measured and its nutritional composition calculated. Physical and biochemical measures of health status (obtained at the beginning of the study and following the unenhanced and enhanced diet

periods) included: weight, height, midarm circumference, triceps skinfold thickness, somatomedin-C/insulin-like growth factor I, serum transferrin levels, total T- and B-lymphocyte counts, and routine blood chemistries. Hand grip strength and pinch strength were measured in a subgroup of participants. There were three major findings: 1) elderly persons ate more when food was flavor-enhanced; 2) consumption of flavor-enhanced food was associated with increased counts of B- and T-lymphocytes, independent of nutrient intake or biochemical status; and 3) grip strength was improved after three weeks' consumption of flavor-enhanced foods. These results lead us to believe that flavor enhancement might be helpful in treating HIV-associated weight loss.

## Summary

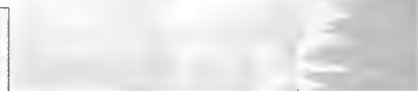
Taste and smell loss (due to medications, oral pathology such as candidiasis, and peripheral or central nervous system disease) are well documented in HIV-infected people. These chemosensory abnormalities can impair food intake and contribute to wasting. An understanding of the how medications affect the senses of taste and smell may allow clinicians to choose medications based in part on these side effects. Meanwhile, the use of flavor enhancers to improve food intake may help the nutrition of patients who have suffered taste and smell losses. □

\* Resources include: International Flavors and Fragrances, Inc., 521 W. 57th St., New York, NY 10019, 212/765-5500; Givaudan-Roure Corp., 100 Delawanna Ave., P.O. Box 5034, Clifton, NJ 07015, 201/365-8122; and Firmenich, Inc., P.O. Box 5880, Princeton NJ 08543, 609/452-1000.

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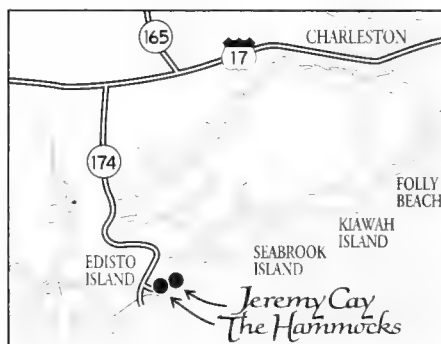
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# Brain Biopsy for HIV-Infected Patients With Intracranial Lesions



Alison E. Heald, MD

Neurologic complications are common in patients infected with the human immunodeficiency virus (HIV). They account for the presenting symptoms in up to 10% of patients, and develop subsequently in 40%-60% of patients. Autopsy estimates of the prevalence of neurologic complications are even higher.

The neurologic manifestations of HIV are myriad, affecting both the central and peripheral nervous systems. They can be caused by a variety of underlying processes: opportunistic infections, malignancy, or even HIV infection itself.<sup>1-3</sup> A common clinical presentation is that of a patient with neurologic signs and symptoms and focal lesion(s) on computerized tomography (CT) or magnetic resonance (MR) imaging.

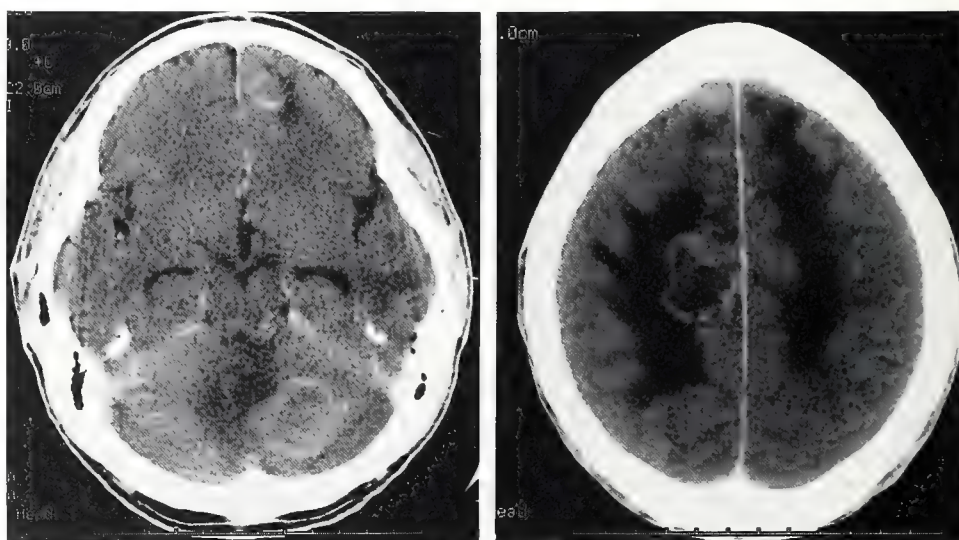
## A Typical Case

A 35-year-old, HIV-infected man had had cryptococcal meningitis, successfully treated three years earlier with amphotericin B and fluconazole. For six months he had been known to have a positive IgG titer for toxoplasma. Now he complained of intermittent dizziness, unsteadiness on his feet, and generalized weakness that had been present for about two weeks. He was taking zidovudine, 200 mg three times a day; double-strength trimethoprim/sulfamethoxazole, one tablet three times a week; and fluconazole, 200 mg daily. Neurologic examination showed normal mental status, intact cranial nerve function, normal motor strength, and normal sensation. He had

an unsteady, wide-based gait and a positive Romberg sign. CT scan of the head showed multiple, ring-enhancing lesions with associated edema in both the right and left frontal lobes and the left cerebellum (Figure 1, below). His most recent CD4 lymphocyte count was 27 per mm<sup>3</sup> (normal range: 400-1400 per mm<sup>3</sup>). The differential diagnosis consists of cerebral toxoplasmosis versus primary central nervous system lymphoma. We will return to his case shortly.

## Cerebral Toxoplasmosis

*Toxoplasma gondii* is the most common cause of cerebral mass lesions in AIDS patients. Infection results from reactivation of previously acquired with *T. gondii*, a ubiquitous protozoan whose definitive host is the cat. Toxoplasma infection is usually asymptomatic in individuals with intact immunity, but cysts of *T. gondii* persist in the central nervous system and in extraneural tissues after infection. Reactivation of these cysts can cause



**Fig 1:** Computerized tomography scan of the head with contrast demonstrating multiple ring-enhancing lesions in the left cerebellum and both frontal lobes of a 35-year-old male with AIDS and new-onset ataxia.

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disease in patients with progressive immune dysfunction as occurs in HIV infection.<sup>4</sup>

Symptoms of cerebral toxoplasmosis typically develop gradually over a period of days to weeks and include headache, mental confusion, fever, lethargy, and seizures. Physical examination may show an abnormal level of consciousness or neurologic signs such as hemiparesis, ataxia, or cranial nerve palsies. Serum IgG antibodies to *T. gondii* are positive in 90%-95% of cases, indicating previous infection. CT or MR scans typically show multiple, ring-enhancing lesions with surrounding edema, located in the basal ganglia or cortex. Measurement of IgM antibodies to *T. gondii* is not helpful because the test is not positive in cases of reactivation of remote infection, and is only rarely positive in the uncommon event of primary toxoplasmosis occurring in an immunocompromised patient. Serologic evaluation of cerebral spinal fluid is not helpful.<sup>5</sup>

Cerebral toxoplasmosis is usually treated with pyrimethamine plus either sulfadiazine or clindamycin. The initial dose of pyrimethamine is 100 mg, given by mouth twice daily for one day, followed by 50-100 mg daily (usually accompanied with folinic acid to prevent the bone marrow toxicity of pyrimethamine). The dose of sulfadiazine is 100 mg/kg (4-8 gm) daily, given either orally or intravenously. If there is difficulty obtaining sulfadiazine, or if the patient develops side effects, clindamycin can be used in doses of 450 mg three times daily by mouth or 600 mg four times daily intravenously. Patients may require phenytoin for seizures, and steroids such as dexamethasone if significant edema is apparent on CT or MR scan. Response to therapy is usually good, and typically occurs in 7-14 days. Treatment should continue at high doses for 3-6 weeks, then at a lower dose indefinitely to prevent recurrence.<sup>6</sup>

## Primary Central Nervous System Lymphoma

Primary central nervous system (CNS) lymphoma, a rare disease in immunocompetent hosts, has become more common with the advent of the AIDS epidemic. Patients generally present late in the course of HIV infection, when the CD4 cell count has fallen to less than 50 cells/mm<sup>3</sup>. The incidence of this opportunistic neoplasm is also increased in patients with congenital immunodeficiencies and in those receiving immunosuppressive therapy for organ transplantation. There is mounting evidence that Epstein-Barr virus plays a role in the malignant transformation of lymphocytes; viral genes have been found in lymphoma cells of patients with AIDS and other immunodeficiencies.<sup>7</sup>

Symptoms of primary CNS lymphoma are similar to those of toxoplasmosis: focal neurologic deficits, seizures, headache, cranial nerve palsies, and altered mental status. Systemic symptoms such as fever and weight loss may occur. CT or MR scans typically demonstrate single or a small number of periventricular, enhancing lesions with associated edema.<sup>8</sup>

Treatment consists of whole brain radiation and dexamethasone.

Untreated, the prognosis is poor, with a median survival of less than one month. With treatment, complete remission occurs in 20%-50% of patients, and remarkable improvement in up to 75% of patients. Despite the initial promise, responses are transient and survival is limited to 4-5 months.<sup>9,10</sup>

## Progressive Multifocal Leukoencephalopathy

Progressive multifocal leukoencephalopathy (PML) is a demyelinating disease of the central nervous system caused by infection of oligodendrocytes with JC\* virus. It occurs in approximately 4% of HIV-infected persons. The three most commonly observed presentations of PML are weakness (including hemiparesis, monoparesis, hemiplegia, or even quadriplegia), visual deficits (blurring, homonymous hemianopsia, diplopia, and even cortical blindness), and cognitive dysfunction (dementia, personality change, confusion, decreased memory, decreased attention span).<sup>11</sup> Other motor dysfunctions include ataxia, bradykinesia, and rigidity.

The diagnosis of PML is usually made by finding an appropriate clinical presentation and a typical appearance on images of the central nervous system. CT scans show focal, hypodense white matter lesions that do not enhance with contrast and do not show a mass effect. MRI typically reveals hyperintense T2-weighted images that do not enhance with contrast (although there are occasional exceptions).<sup>12</sup>

There is no clearly effective therapy for PML. Anecdotal reports suggest that cytosine arabinoside (ARA-C, cytarabine) may be of benefit in some cases. Zidovudine, interferon, heparin, and prednisone have been tried, but there is no evidence to suggest that they are helpful.<sup>12</sup> The usual approach consists of supportive therapy and ARA-C in selected patients or as part of a protocol.

## Other Etiologies

Other infectious and malignant causes of focal mass lesions have been described.<sup>13,14</sup> Treatable infectious etiologies include focal tuberculosis, cryptococcus, syphilis, atypical mycobacteria, nocardia, and bacterial brain abscess. Malignant causes include metastatic, systemic non-Hodgkin's lymphoma, gliomas, adenocarcinoma, and melanoma. Therapy for these is aimed at the specific cause of the focal brain lesion.

## Establishing a Diagnosis

Distinguishing the cause of brain masses is important because

\*Author's note: The letters "JC" in "JC virus" stand for the initials of the first patient in whom the virus was identified.



treatment varies greatly depending on etiology. Most focal CNS lesions in AIDS patients are caused by cerebral toxoplasmosis, primary CNS lymphoma, or PML. PML can usually be identified from its clinical presentation and the lack of enhancement of or edema surrounding the lesions on CT or MR scan. Separating cerebral toxoplasmosis from primary CNS lymphoma is more problematic. In general, the lesions of cerebral toxoplasmosis tend to be multiple and involve the basal ganglia and cortex, whereas the lesions of primary CNS lymphoma are single or few in number and are periventricular. There is, however, considerable overlap. The relative likelihood of cerebral toxoplasmosis depends on the underlying prevalence of *T. gondii* infection in the population. In areas of high prevalence such as western Europe or Africa, 25%-50% of HIV-infected patients develop cerebral toxoplasmosis.<sup>4</sup> In the United States, where infection with *T. gondii* is much less common, cerebral toxoplasmosis has been reported in only 1%-5% of patients with AIDS.

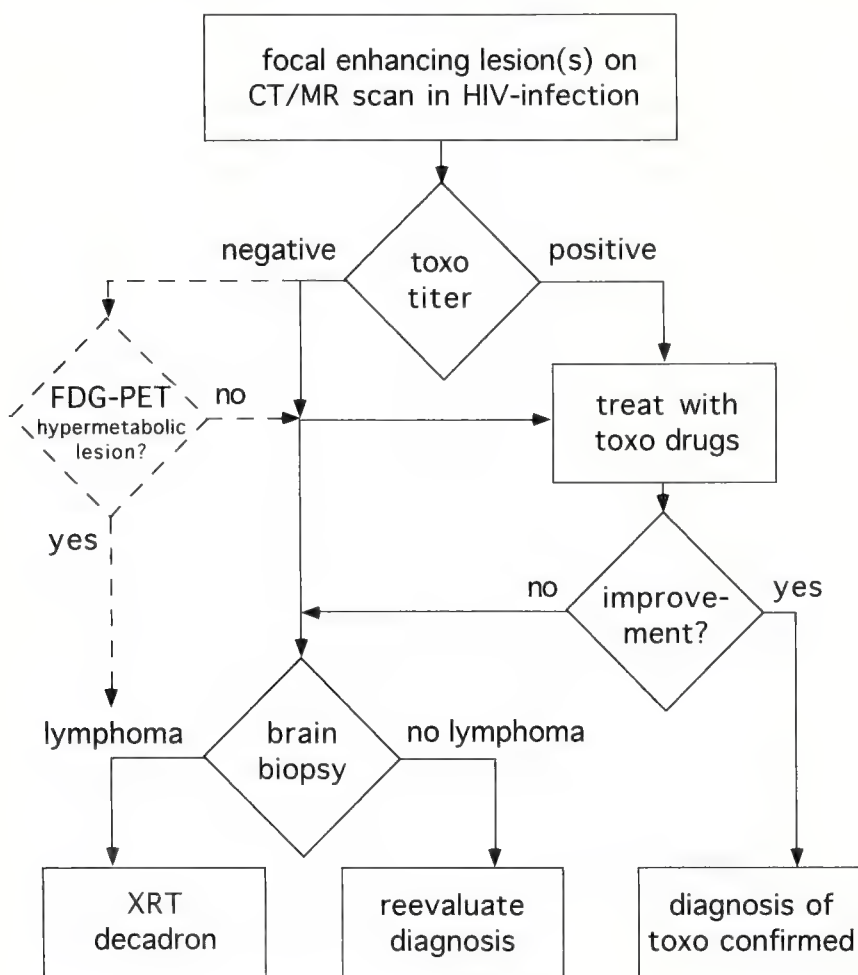
Figure 2 shows an algorithm for the diagnosis of focal brain lesions in HIV-infected patients. Because toxoplasmosis is

both relatively common and highly treatable, patients with mass lesions and a positive test for IgG antibodies to *T. gondii* are usually treated empirically for toxoplasmosis. The symptoms of cerebral toxoplasmosis respond within 7-10 days, and the mass lesions on CT or MR scan shrink. One pitfall of this approach is the use of corticosteroids to reduce cerebral edema, because the response to therapy may reflect reduction of swelling rather than an antimicrobial effect. If the patient does not respond to therapy for toxoplasmosis, brain biopsy may provide definitive diagnosis. CT or MR-guided biopsy of CNS lesions can be performed with relative ease (mortality rate is less than 2% and morbidity ranges from 0-10%<sup>15</sup>).

Brain biopsy ought to be considered early if the patient's toxoplasma serology is negative and only one or a few lesions are seen on CT or MR scan. When the diagnosis of cerebral toxoplasmosis seems unlikely, brain biopsy should be considered even before an empiric trial of therapy. On the other hand, if the patient has very advanced disease, a history of multiple opportunistic complications, and poor functional status, there is little value in biopsy because the patient could not withstand radiation for CNS lymphoma. Recommendations for brain biopsy should consider the patient's clinical status, the likelihood of finding a treatable condition, and the desires of patient and family. For example, in a patient who has had three or more opportunistic complications and has a Karnofsky performance status of 70% or less, it would be reasonable to screen for treatable infections with a serum VDRL and serum cryptococcal antigen, and to treat for cerebral toxoplasmosis while counseling the patient and family about the probable outcome if the patient does not have cerebral toxoplasmosis.

## Back to Our Patient

Our patient was started empirically on pyrimethamine, sulfadiazine, folinic acid, and decadron. He improved at first, but developed nausea, vomiting, confusion, and urinary incontinence eight days later. Repeat head CT showed the interval development of obstructive hydrocephalus and an increase in the size of the lesions. The decadron dose was increased, with another transient improvement in the patient's mental status. Stereotactic brain biopsy showed large cell lymphoma of the B-cell phenotype. Antitoxoplasma therapy was discontinued, and radiation begun. He improved initially, but expired from recurrent lymphoma two months later.



**Fig 2:** Diagnostic algorithm for HIV-infected patients with focal enhancing brain lesions. Dotted lines indicate utilization of new diagnostic techniques.

## New Diagnostic Developments

Since our patient was treated, new techniques have been developed to help distinguish malignant from infectious lesions. Positron emission tomography (PET) imaging provides a noninvasive means of measuring the metabolic activity of tissue by assessing the consumption of glucose. In nonAIDS patients, primary CNS lymphoma demonstrates increased glucose consumption on PET imaging, reflecting high metabolic activity.<sup>16</sup> Preliminary studies<sup>17,18</sup> in AIDS patients show that malignancies such as lymphoma are hypermetabolic on PET scanning whereas infectious lesions such as those of toxoplas-

mosis are not. Single photon emission computed tomography (SPECT) shows promise in differentiating CNS lesions.<sup>19</sup> These noninvasive techniques may allow rapid diagnosis and treatment of lymphoma without the morbidity of brain biopsy. At present, some research institutions with PET scanning facilities use radiotherapy for hypermetabolic CNS lesions in AIDS patients without biopsy confirmation of lymphoma, but this practice has not yet been standard care. □

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# Remembering Ron

## A Glimpse Into the Heart of Doctoring

William G. Porter, MD

He hobbled into my office in 1971, a year after I started practice. He had hemophilia and had just moved to town, so he needed a hematologist. Though barely older than I was, he was biologically much older. The skin over his lower legs was bronzed by iron pigment; repeated hemarthroses had frozen his knees and ankles into immobility. But to hear Ron tell it, hemophilia was just a minor annoyance in an otherwise happy life. A crooked smile on his face, he proudly told me about his family and his good job with a large chemical company. We reminisced about shared boyhood experiences in the small South Carolina towns where we both came of age in the innocent monotony of the early 1950s.

When I pressed for more information about his disease, Ron admitted that his joints hurt. Three or four times a year he needed transfusions of Factor VIII to arrest post-traumatic or spontaneous bleeding. Still, hemophilia seemed no more than a minor inconvenience in an otherwise orderly life.

That life ended in 1989 when Ron died of AIDS. By then I had left practice and turned his care over to my successor, but I always went to see him when he was in the hospital. On his final admission, we had a long visit, just the two of us. He was near death, and ready for it; not bitter or angry, just sad that he would not see his grandchildren grow up. I tried to tell him how sorry I was to have "given" him the virus in one of his many Factor VIII transfusions, but he waved his arm dismissively. "Hell, babe," he said, lapsing into the outdated slang of our adolescence, "don't sweat it; we did what we had to do." I've always been grateful for that "we." It could as easily have been "you."

### Detecting the Origins of HIV Transmission

In the years since Ron died, his widow Barbara and I have stayed in touch. She usually calls from her job at K-Mart, so

when I return her calls and wait for her to come to the phone, I get a recording that encourages me to come in and shop for that week's specials. Not long ago Barbara called to tell me she had heard about a class-action settlement being offered by the manufacturers of two Factor VIII products. Anyone who had received them between 1979 and 1985 and become HIV-positive would receive \$100,000. Did I know if Ron had received them? She thought maybe he had when he had his gallbladder removed in 1985. I did not remember offhand, but I told her that I would try to find out.

My first stop was the blood bank at the hospital. The technologist and I reviewed the records, a stack of 4-by-6 cards documenting the dates of transfusions of cryoprecipitate from the Red Cross. There was no record of transfusion of any pharmaceutical product, though we were able to confirm that one such product had been available in the hospital in 1985.

Next, in the medical records department I pulled out the thick stack of microfilm documenting Ron's many admissions. I had planned to zero in on the cholecystectomy, but I became engrossed in the entire chronology of his illness, recorded in my own words over more than two decades. It was like looking at old photographs of myself, searching for the first signs of age, or maturity. What confidence I had in 1971! Fresh out of fellowship, brimming with the latest dicta of the academy, my notes were bold and unburdened by doubt. "Hemophiliac with spontaneous hemarthrosis rt. knee; Rx: 8 units cryoprecipitate, rest, elevation, codeine prn." There were 20 similar entries, detailing the treatment of Ron's various bleeding episodes. But not a word that conveyed even a glimpse of Ron the person, his particularity, the joy he took in being alive; how he never complained that his knees would not bend enough to let him pet his dog or frolic with his children, how every day was haunted by the specter of bleeding. None of that came through in what I had recorded; just another case of hemophilia, which I would one day unwittingly treat with a fatal "remedy."

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## Individualizing Medical Records

Thumbing through a medical journal the other day, I ran across a quote from Felix Marti-Ibanez's book, *Centaur: Essays on the History of Medical Ideas*: "A clinical case history of yore is a precious document, fashioned with love and respect by the physician. Today, it is indifferently committed to the hands of a subaltern. In this manner we are losing the habit of careful anamnesis, without which there can be no truly scientific medicine."<sup>1</sup> Well, yes and no. I could blame no subaltern for the sterility of my notes; I made them myself. I could have written as much as I wished, I could have larded the history with love and respect. Nor was the verbal "anamnesis" in Ron's case incomplete; he told me a lot about himself; I just hadn't bothered to write it down. And because what I did write conveyed nothing of Ron's individuality, future readers (should there be any) would never know about his insouciant off-center grin, his toleration of pain and disability, his optimism. As Arthur Danto pointed out recently, "the images that others carry of us are what Sartre described as our *etre pour autrui*, our being-for-others, and when there are no others our death is complete. When the last person who remembers us is dead, we become what we have written, or what has been written about us."<sup>2</sup>

In his essay "The Chart of the Novel," Gerald Weissmann compares the medical record to a 19th-century novel: the *History of Present Illness* sets the scene; character development occurs by way of the *Past History*, *Social History*, and *Family History*; and a plot evolves in the daily *Progress Notes*. Consider the first sentence of the case history recording Dylan Thomas's last hospitalization for alcoholism: "This is the second SVH admission of a 39-year-old, obese Welsh poet, admitted in acute coma after vomiting blood."<sup>3</sup> The man and his tragedy are implicit in the adjectives.

While looking into the early treatment of pernicious anemia with liver at the Massachusetts General Hospital, I found the history Dr. William Murphy recorded on one of his patients on January 14, 1926. "Social History: The patient is a single machinist who occupies one room in a boarding house. He does not pay rent while in the hospital. He has an aged mother who is apparently only partly dependent upon him. During his disease other folks will take care of her. The patient has no home or place suited for convalescence. He is of German descent, was born in Nova Scotia. He came to this country at the age of one and has no language difficulties. He is fairly well educated and is intelligent enough to follow dietary instructions and can pay for the same.... No emotional factors in the patient's home at the present time."<sup>4</sup>

This is the kind of information Marti-Ibanez says doctors have of late "indifferently committed to the hands of a subaltern," to a nurse, a discharge planner, a social worker, a chaplain, to all the caregivers who have appeared at the bedside in the 70 years since Murphy (who won the Nobel Prize for his studies of pernicious anemia) recorded social history in such rich detail. This is not to suggest that the reassignment of

recordkeeping responsibility is bad for the patient; it isn't. But I do wonder if it's not bad for physicians, for the quality of our own interior life—a life that might be enriched if, from time to time, we took a moment to record an identifying observation about our patients. The way biologists band a bird to trace its migration.

As I continued my review of Ron's records, I arrived finally at the archive of his cholecystectomy. My dictated history addressed the hazards of surgery (though nothing of my conversation with Ron and Barbara about the pros and cons of operating). I had seen Ron some weeks earlier with a typical bout of cholecystitis. An ultrasound confirmed gallstones. When the attacks recurred, I knew his gallbladder would have to come out despite the hemophilia.

It was 1985, and testing for antibody to HIV would soon be available. We already knew transfusions posed a risk of HIV transmission, but we thought that Factor VIII products were safe. In any case, there was no alternative; surgery was unthinkable without Factor VIII replacement. Ron and Barbara agreed; whatever the risk, anything was better than another attack of colic.

So the surgeon and I conferred. I promised to keep Ron's Factor VIII level high enough to prevent bleeding; the surgeon promised to pay special heed to hemostasis. Our plan worked, at least for the short-term. Ron didn't bleed; he just got AIDS and died four years later. I'm not even sure when he got it.

## Locating the Clues, Justifying the Claim

Sitting there in the dark, years later, looking at page after page of transfusion records, I had no way of knowing which of the countless units of Factor VIII, monotonously documented in row upon row of tiny print, was the tainted one. Back and forth I slid the film, looking for clues. But there were none. It was like standing in a military cemetery, looking at the identical rows of crosses, trying to imagine the unique lives, one by one, they represented. How different from watching film of the Kennedy assassination or the Challenger disaster, knowing from endless repetitions the exact moment the President's head would pitch forward, precisely where in its fateful trajectory the rocket would explode. Nothing like that in Ron's case. No bang. Not even a whimper.

I looked at my watch. I had spent more than an hour poring over Ron's records. As always seems to be the case these days, I was late for a meeting. I shook off the contemplative mood in which I had been luxuriating and finished my examination of the transfusion record. Ron had indeed received the Factor VIII product in question! I made copies to document the fact, tucked them in my pocket, replaced the microfilm in the box where it will probably spend eternity, and resumed my daily round.

The next day I called Barbara and told her I had the information she needed. She thanked me, then hastened to tell me she would never have sought restitution from the company had the class-action settlement not been offered. "I'm not



looking to sue somebody," she said, almost apologetically. "Ron wouldn't have wanted me to. I just want what everybody else is getting. I think I'm entitled to it." Entitled to a lot more than that, I thought, but I didn't mean money. I meant more of Ron, that case of hemophilia I once treated. More of what the rest of us take for granted. Over the next several days Barbara and I gathered the documentation necessary for her claim: dated copies of the HIV antibody test, the transfusion record, and my certification of their validity. When the task was finally done, she came by the clinic to pick up the last bit of paperwork. We hugged each other in parting. Then she said, "If I get this money, I want to do something for you to thank you for helping me."

"You already have, Barbara," I said. "You already have." □

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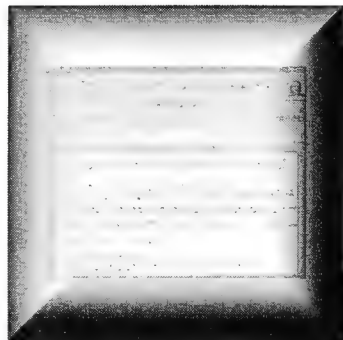
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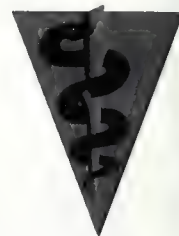
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# Gay and Lesbian Issues in Graduate Medical Education



Mark H. Townsend, MD

There is little information about how lesbian, gay, and bisexual (LGB) issues are addressed in graduate medical training. This is not surprising, given the complex and specific academic cultures associated with each of the medical specialties. In fact, to have any idea at all, it is necessary to extrapolate from research based mainly on psychiatric and, more recently, family practice residency training to other graduate training situations. Still, it is possible to identify common themes regarding both instruction on the care of LGB patients and the distinct needs of LGB interns and residents.

## Instruction on the Topic of Homosexuality

The number of hours of instruction devoted to the care of LGB patients depends understandably on the gay-specific information available to a particular specialty. For example, psychiatry often identifies specific issues in LGB patient care (such as the increased risk of suicide among LGB youth), yet orthopedic surgery does not. Even so, instructors in all specialties can enhance their discussion of the clinical matters pertaining to LGB patients, to the benefit of trainees who may be unaware of the patient's sexual orientation.

Medical students often ask why it is important to inquire about the sexual orientation of patients, and how this information can be used in the care of the patient. The simplistic answer is that certain illnesses may be more common among lesbians and gay men, but in fact a lot more rigorous research is needed to support or dispel what is often merely a case-driven hypothesis about the supposed health risks of these populations. The real reason to identify patients as lesbian or gay is to counter any negative assumptions that trainees may have about LGB patients. Simply acknowledging that a particular patient is gay

may seem like a very small intervention, but when patients are presumed to be heterosexual, we miss the chance to discuss LGB-specific issues. Instructors must compensate by getting a more complete social history of the patient. One method for increasing awareness of LGB patients is simply to mention the homosexual orientation of patients presented for review in case conferences.

In a 1995 study of US general psychiatry training directors,<sup>1</sup> we found that nearly all programs provided some instruction about LGB patient care. In fact, only four of 134 respondents (3%) said they provided none. The topics of homosexuality and LGB patient care were discussed most often in human sexuality courses (74%), case conferences (63%), lectures on child development (54%), lectures on psychotherapy (52%), and in grand rounds (49%). Less often, LGB issues were discussed in transcultural psychiatry courses (35%), in consultation courses (31%), or in a journal club (31%). Topics related to homosexuality were considered most often during the second and third years of four-year psychiatry residencies. It is encouraging that, although teaching about homosexuality occurs most often in human sexuality courses, such instruction does form part of other courses with a more general focus. No information is currently available from fields outside of psychiatry with which to compare these data.

## Needs and Concerns of Lesbian, Gay, and Bisexual Residents

Research into the relation between LGB residents and their medical centers has been meager, despite the enormous changes of the past 25 years in how medicine, and society itself, views homosexuality. When homosexuality was removed as an entry in the Diagnostic and Statistical Manual of Mental Disorders in 1973, LGB residents stopped being physicians with a diagnosable condition and became physicians possessing an attribute that can actually enhance departmental diversity.

Residents today tend to be increasingly open about their

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homosexuality, but there is great variability in the degree to which training directors are aware of the sexual orientation of their residents, a lack of awareness that correlates with a negative view of LGB residents as a whole.

LGB medical students vary considerably in their perception of the supportiveness of residency training programs. A recent survey of third- and fourth-year students<sup>2</sup> noted that psychiatry and family practice tended to affirm the sexual orientation of LGB students, but not other specialties such as surgery and ob/gyn. Overall, more than half of the LGB students thought they would be ranked lower for residency selection because of their sexual orientation.

LGB students are quite conscious of training directors' perceptions of their sexual orientation, and the use of these perceptions in making decisions that have a major impact on the students' lives. As a result, many students hide their homosexuality during the residency application process—for example, by omitting important gay-related academic or professional accomplishments from their CVs. Faculty should be sensitive to this during the interview process if they want to make LGB residents feel welcome. Appropriate, open-ended questioning might allow LGB applicants to discuss relevant concerns, such as the availability of domestic partnership benefits or the faculty's attitude toward LGB residents.

Our survey of 80 psychiatry residents from 44 programs in 21 states<sup>3</sup> is the only study of the perceptions of LGB physicians-in-training known to us. One finding—which might surprise those who think psychiatrists are unified in the view that homosexuality is not a mental illness—was that 21% of residents characterized their program's stance toward homosexuality as pathological, 41% as normal, and 38%, neutral. Half the respondents said that their sexuality enhanced their career in psychiatry, and less than 10% considered it a detriment.

More residents felt comfortable disclosing their homosexuality ("coming out") to faculty than in discussing gay-related concerns with them. For example, 56% said they had come out to their residency directors, but only 43% reported they could raise gay issues with them; 24% said they had come out to their chairpersons, but only 21% could discuss gay issues with them. More than half (60%) said they knew at least one LGB faculty member.

One area of particular interest to us was whether (and when) LGB residents disclosed their homosexual orientation to patients. This might be a controversial issue in any specialty, but especially in psychiatry because the disclosure of any personal information to patients has often been expressly discouraged in psychotherapy. Nevertheless, we found that about one-third of residents had disclosed their homosexuality to patients. There was no specific point in treatment (for example, at the first interview or during termination) at which disclosure was more likely to occur. Residents most often disclosed to LGB patients. Third- and fourth-year residents were more likely to report self-disclosure than less experienced trainees, suggesting that these more experienced residents found the practice clinically useful.

We also wondered whether lesbian residents experienced greater adversity in residency training than gay men, given research suggesting that women generally endure greater stress in training<sup>4</sup> and often feel alienated from the male physicians who supervise them.<sup>5</sup> In fact, fewer women than gay men in our study made use of social networks, including LGB faculty, and women had less knowledge of gay physician support groups. Men were more likely than women to report that their homosexuality was an asset to their careers and to feel that their departments did not consider homosexuality a pathology.

We had too few child psychiatry residents in our sample to draw firm conclusions, but these residents may feel even more need to conceal their sexual orientation than general psychiatry trainees,<sup>6</sup> because of societal prejudice (the worry that homosexual doctors may somehow influence their patients toward homosexuality) and a fear that parents will not send their children to LGB physicians. Since academic medical centers increasingly depend on the revenue generated by patient care, LGB residents may directly or indirectly receive from their supervisors a message to conceal their sexual orientation. Residents who, as a result, do not participate in LGB physician support groups or discuss LGB-related issues with their supervisors risk experiencing greater stress than their heterosexual colleagues and may feel isolated and alone.

## The Perceptions of Training Directors

In addition to our survey of general psychiatry training directors, we recently surveyed directors of child and adolescent programs.<sup>7</sup> General psychiatry training directors reported departmental attitudes about homosexuality that mirrored those reported by residents: less than half (47%) reported that homosexuality was considered a "normal" or "somewhat normal" condition. A similar percentage of the directors said that LGB residents were "an asset" or "somewhat of an asset" to their departments. Training directors who knew which of their residents were LGB were more likely to report that LGB residents were an asset to their departments and that homosexuality was a "normal" condition. Child psychiatry training directors gave similar reports about departmental views on homosexuality and the value of LGB residents.

Psychiatry training directors had highly negative opinions about whether residents should disclose their homosexual orientation to patients; less than 3% of either the general or child psychiatry directors ranked the practice as "favorable." We find this disturbing because so many residents report that they *do* disclose; based on the negative reaction expressed by directors, they may not be discussing this with psychotherapy supervisors. Some psychotherapists argue that disclosure helps<sup>8</sup> gay patients because they feel immediately comfortable with a therapist they know to be gay, but it is not a widely accepted psychotherapy technique. We suspect that LGB residents generally feel uncomfortable discussing issues relating to their own sexual orientation with heterosexual supervisors. Many resi-



dents say that they do not have faculty with whom to discuss "gay-related issues," and as already noted, many psychiatrists continue to regard homosexuality as a less than completely normal condition. Psychiatry faculty who want frank dialogues with the LGB residents they supervise must create a "safe" opportunity for residents to do so; residents who believe their departments view homosexuality as pathological may be particularly unwilling to discuss gay-specific concerns with faculty supervisors.

The situation appears similar in family practice residencies where there are varied responses about homosexuality. In a recent survey,<sup>2</sup> more than two-thirds of US family practice residency directors reported "accepting" attitudes; 25% had "neutral" views; and 8%, "negative" views. Women directors tended to be more accepting than men. Nevertheless, 25% of the directors admitted that they either "might" or "would most certainly" rank LGB applicants lower in the residency match. One in six said that LGB residents would not easily "fit in" to their residencies.

The survey also questioned family practice directors about whether candidates should self-disclose during the residency interview process, but avoided the contentious issue of disclosure to patients. Some 25% thought it inappropriate for an applicant to inquire about departmental attitudes about homosexuality, and 14% thought that applicants should not list gay-related achievements, leadership positions, or publications on their CVs. Roughly half thought it inappropriate for applicants to disclose their homosexuality in their personal statements. Directors who had previously worked with LGB residents had less negative attitudes toward homosexuality, and those who had known the most LGB residents had the most "homophilic" scores.

## Directions For the Future

Based on the information available from psychiatry and family practice residencies, it seems clear that faculty have widely divergent views on homosexuality. This no doubt mirrors society at large. Nevertheless, at the very least medicine has an obligation to prepare physicians-in-training to work with LGB patients and to be sensitive to their needs.

Already there is evidence that some members of the lesbian community avoid routine medical care due to a perception that physicians are disrespectful.<sup>9</sup> Two recent surveys suggest that LGB students and residents hear much anti-gay speech in their academic medical centers.<sup>10,11</sup> Hate speech poisons the climate for all students and trainees, making the job of demonstrating that LGB patients have special and distinct needs (while emphasizing their sexuality as a normal variant) all the more difficult. Departments that avoid all discussion of LGB issues risk leaving their trainees in the grip of prejudice and misinformation when they interview and examine patients. In addition, physicians who train in anti-gay environments may be less likely to meet LGB colleagues (who hide their sexual orientation in such circumstances), and never get to appreciate how similar their lives are.

Medical centers should work to foster a sense of openness about homosexuality and research into the specific needs of LGB patients. Not only will this benefit LGB trainees, who will be less circumspect and more willing to discuss gay-specific patient issues with faculty, but it will benefit all members of the medical community. Care is not served when a segment of the population is treated with derision or neglect, or when LGB students and residents are encouraged to remain hidden. One can only wonder who is being protected when talented LGB students and residents must conceal their accomplishments and opinions. And at what cost? □

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# Health Watch

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## A Patient's Guide to Safer Sex

### REDUCING THE RISK OF HIV AND OTHER SEXUALLY TRANSMITTED DISEASES

by Robert Thomas Dodge, RN, MSN, ANP, ACRN;  
Stuart Carr, BA; and Carol Dukes Hamilton, MD

*Editor's Note: This publication contains graphic information related to sexual practices of bisexual, homosexual, and heterosexual adults. Care should be taken in distributing this to patients who may be easily offended.*

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In today's society, with an increasing incidence of sexually transmitted diseases (STDs), including the AIDS virus (the human immunodeficiency virus or HIV), health care professionals and community advocacy groups strongly urge *all* sexually active individuals to understand and use *safer sex* practices. This is particularly important for the male homosexual population. This *Health Watch* provides information that will help heterosexual partners, exclusively same-sex partners, and those who consider themselves bisexual to stay healthy. Use of these recommended guidelines for safer sex practices will reduce the transmission of HIV and other STDs.

Practical advice will be provided to help individuals identify safe and risky sexual practices. While we may all agree that the safest sex is no sex, we also acknowledge the reality of human nature. In this article we provide frank, practical advice to lessen the risk of transmission of HIV and other STDs. People who are sexually active are encouraged to discuss safer sex and the issues of HIV and STDs with their health care providers.



## HIV can be found in the following body fluids:

- blood (including menstrual blood)
- semen (and "pre-cum")
- vaginal fluids
- breast milk

Currently, in the United States, the transmission rate of HIV is highest among men who have sex with men, but new cases are increasing the fastest in the heterosexual population. The lowest risk of transmission occurs among women who have sex exclusively with women. Individuals with HIV infection, even AIDS, may appear healthy while still being contagious, depending on the damage done to the immune system by the virus. The fact that an individual has had a negative HIV test does not guarantee that this individual has not recently become infected with HIV. It can take up to six months after infection before the presence of antibodies to the virus can be detected by laboratory tests such as the ELISA and Western Blot.

All STDs are spread by direct contact with the surface areas of the mouth, genitals, or anus. Rashes, discharges, or other symptoms may be present when a particular STD is contagious. But in many cases, individuals can be carriers or have no visible symptoms of an active disease and still transmit the infection during unsafe sex practices.

## The most common sexually transmitted diseases

- |                       |                              |
|-----------------------|------------------------------|
| • Bacterial Vaginosis | • Chlamydia                  |
| • Genital Warts       | • Gonorrhea                  |
| • Herpes              | • Hepatitis B                |
| • HIV                 | • Human Papillomavirus (HPV) |
| • Syphilis            | • Trichomonas                |



## What activities are most risky ?

### *Extremely high risk*

- Unprotected anal and vaginal intercourse
- Sharing needles (for drugs and piercing)

### *Moderate risk*

- Unprotected oral sex on a man or women
- Unprotected oral-anal contact (rimming)
- Unprotected fisting or intercourse using single or multiple finger(s)
- Getting urine or feces in mouth, vagina, or rectum
- Sharing devices that draw blood (whips and knives)
- Sharing unprotected sex toys (dildos and butt plugs)
- Allowing fluids to come in contact with broken skin and mucus membranes

### *Low risk*

- Deep (French) kissing
- Anal and vaginal intercourse with a condom
- Fisting or intercourse using single or multiple finger(s) protected by a latex glove
- Petting or manual genital contact with broken skin
- Oral-anal contact (rimming) with a latex barrier (dental dam)
- Oral sex on a man or woman using a condom or latex barrier (dental dam)

### *No risk*

- Massage
- Dry kissing
- Hugging and touching
- Vibrators or sex toys (not shared)
- Masturbation (alone or with a partner)
- Spanking or whipping that does not break the skin
- Petting or manual genital contact without broken skin
- Bondage and discipline play that does not break the skin

## Safer sex devices

### Male Condoms

Use only a latex condom for all oral sex and anal/vaginal intercourse. Natural lambskin condoms are an ineffective barrier against HIV. *Use only a water-based lubricant* (such as K-Y, Wet, or ID). Oil-containing products such as Crisco, Vaseline, baby oil, and lotions can destroy latex products. *Do not use saliva as a lubricant.*

Lubricants containing the spermicide Nonoxynol-9 can kill HIV and STDs. Place a drop or two in the tip of the condom before placement to add extra protection in case the condom breaks during intercourse. Be aware that some individuals are allergic to Nonoxynol-9. Symptoms include burning sensation and redness of the genital areas. Another extra precaution is to pull out before ejaculation, but *do not* count on this to be safe *if* you are not using a condom. There are flavored condoms especially for oral sex. *Never reuse a condom.*

### Female Condoms

This is an alternative to the male condom that gives the female partner more control over her own protection. They are sold under the brand name Reality® and are designed to be inserted into the vagina with an outer ring covering the outer lips. Although this has not been tested for use in male to male anal intercourse, it may provide protection. Adequate water-based lubrication is required to ensure proper usage.

### Dental Dams

These latex squares are used to cover the anus or vagina during oral sex. Plastic wrap such as Saran-Wrap, can be used as a substitute for a latex dental dam. Plastic wraps are not destroyed by oils, and may provide a better sensation than latex.

### Finger Cots and Gloves

Cots are mini-condoms worn on the fingers for finger intercourse. Latex gloves are used for fisting and manual-vaginal stimulation.

### Sex Toys

Contaminated toys can transmit HIV between partners. *Do not share sex toys.* Dildos and butt plugs should be covered with a new condom for each sexual partner.

## Other sex advice

### If you are HIV Positive or have AIDS

If you are HIV positive or have AIDS, you must tell any potential sex partners that you are infected with the AIDS virus before you have sex together. This is a law in North Carolina and most, if not all, states. If the person agrees to have sex with you, it is necessary for you both to be as safe as possible. (*See No risk and Low risk on the previous tables*). Many health care providers encourage people who are HIV positive to practice safer sex even with partners who are also HIV positive. This can prevent both from being co-infected with a different strain of HIV or with other STDs that might worsen current HIV status and increase disease progression. If you and your HIV-infected partner have a long-term, monogamous relationship and have no other risk factors for HIV and STDs, you may not need to practice safer sex forever. You should discuss this with your health care provider.

### If you are HIV negative

The highest risk for acquiring new STDs, including HIV, is from a new sexual partner, someone you have been having sex with for less than 6 months. You should use the safest sex practices possible during this time period. If you or your partner do things that put you at high risk for HIV infection, (such as using IV drugs or sleeping around), you should continue to use these safest sex practices. If, however, you and your partner are in a long-term, monogamous relationship *and* neither of you have any other risky behaviors for HIV and STDs *and* if you have both tested negative for HIV and other STDs, this may not need to be your sexual practice forever. Discuss this with your health care provider first.

### Drugs and Alcohol

Studies have shown that when people use drugs or drink alcohol, they let their guard down and often do things they otherwise might not do. Impaired judgment places them at a higher risk for engaging in unsafe sexual practices.

## Summary

In summary, each person must be responsible for his or her own sexual health and, unfortunately, there are some deadly infections in the population these days. We hope this frank discussion of options will help you make smart decisions about your sex life. □



## "How do I sleep at night?"



"It's hard to sleep well when you think about the fact that one out of every 250 Americans is infected with HIV. We have more than 34,000 employees worldwide, and I know that AIDS doesn't discriminate. I'm concerned for my employees.

"Because of my position, I hope I can lead by example. At my company, we've had an AIDS education program in place since 1986. We're trying to replace ignorance and fear with understanding and compassion. We've tried to dispel the myths that surround this dreadful disease.

"Now, at least our employees know the facts. They know that work doesn't stop if someone's infected. They know that people with HIV continue to make valuable contributions in the workplace. They know how to show their support. Most importantly, they have a better idea of how to help prevent HIV.

"These are the kinds of things that help me sleep better at night. But none of us can really rest until the AIDS epidemic is stopped. Our efforts to prevent the spread of HIV have just begun. It will take every company's commitment. Success depends on each of us."

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A message from the U.S. DEPARTMENT OF HEALTH & HUMAN SERVICES, Public Health Service, Centers for Disease Control and Prevention

# Homophobia and Heterosexism

## Out of the Medical School Closet



Mollie M. Wallick, PhD

I have had a longstanding interest in *all* diversity issues, but my main focus since the early 1980s has been, perforce, on gay men and lesbians in medical school and residency. My sensitivity to these matters was awakened by the convergence of two significant events:

1) The first was a national movement to improve the undergraduate medical teaching of human sexuality. In response to this movement, Louisiana State University School of Medicine in New Orleans (LSUSM-NO) added 10 instructional hours in Behavioral Sciences, including two hours devoted to homosexuality. My first curricular offering—a “straight” lecture (no pun intended) by a prominent psychiatrist—failed miserably to deliver a balanced presentation on homosexuality. In order to increase the possibility of getting the affirming message I desired, I organized a panel discussion for the following year. Luckily, I was directed to a sensitive, gay, community physician who has participated annually and who has helped significantly in composing the panel both at LSUSM-NO and, subsequently, at another area medical school and at a liberal arts college in a neighboring state. The panel of gay and lesbian physicians share their life stories, putting a human face on what, for many students, had been only an abstraction. The two-hour panel presentation is followed by small-group discussions, which last one hour and deal with the issues raised by the panelists. An intense working-through of feelings occurs during these meetings when students face the topic of homosexuality in highly interactive small groups, each facilitated by a departmental faculty member or resident.

2) For more than two decades I have been counseling medical students. This close working relationship led to a second watershed event. In the early 1980s, a first-year student confided to me that he was gay. He described the sense of isolation that arose because he did not know anyone with whom he could safely share his identity and innermost feelings. When

he learned of support groups in the city, he asked if I would serve as faculty liaison to gay and lesbian students, in order to advise them of available community support. The dean of the school supported the concept of a liaison but asked that I not take the job, fearing that it would make other students avoid my office. My request for another faculty member—heterosexual or homosexual—to serve as liaison was unsuccessful, and the official position remained unfilled until a new dean was appointed two years later. Happily, he enthusiastically supported my service as liaison. No role has been more challenging or more rewarding to me. Gay men and lesbians face many barriers in medicine. Much has been accomplished to overcome these barriers, but many challenges remain as we bring homophobia and heterosexism out of the medical school closet.

### Openness About Sexual Identity

Gay civil rights, in general, have gained prominence, largely due to the efforts of gays themselves who have become open about their homosexuality and more urgent in their demand for an end to bias. Sadly, one of the major contributors to the “out-of-closet” phenomenon has been the AIDS pandemic. Not only individuals, but whole organizations have abandoned the closet: on National Coming Out Day 1994, the American Association of Physicians for Human Rights changed its name to the Gay and Lesbian Medical Association.

How has this new openness played out in medical education? Young people today are revealing their homosexual identity (“coming out”—short for “coming out of the closet”—either personally, professionally, or both) at a much earlier age than just a decade ago. But some gay medical students who have been open about their sexuality in college reenter the closet in medical school because their academic advisors warn that their sexual orientation may be a barrier to professional entry; other students, out in medical school, retreat to concealment when applying for residency because they once again consider their orientation a barrier to specialty practice. In the medical train-

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ing environment, gay students find themselves in a milieu that presumes heterosexuality, emphasizes conformity, and discourages individual expression. Nevertheless, my colleagues and I recently surveyed 185 members of Lesbian, Gay, and Bisexual People in Medicine (a standing committee of the American Medical Student Association) at 92 medical schools in 35 states. We found that 90% had come out to another student, 66% to a faculty member, and 43% to an entire class.<sup>1</sup>

## Watershed Decisions About Homosexuality in Medicine

In December 1973, the Board of Trustees of the American Psychiatric Association (APA) removed homosexuality from the official list of mental disorders. Today, organized psychiatry views homosexuality as a nonpathological variant, and the APA has passed resolutions affirming a broad policy of nondiscrimination toward gay men and lesbians.

In June 1993, the American Medical Association banned discrimination against gay, lesbian, and bisexual doctors by adding the words "sexual orientation" to the AMA's nondiscrimination bylaws. A December 1994 policy paper adopted without dissent by the AMA's House of Delegates extends nondiscrimination to patient care, calls for physicians' "nonjudgmental recognition of sexual orientation and behavior," and recommends more emphasis in medical school on the physical and psychological needs of gay men and lesbians.

How has medical education responded? A recent survey of accredited US medical schools<sup>2</sup> revealed that 63% of the 97 responding schools include sexual orientation as an institutionally protected category. We found that antidiscrimination policies are more common in private schools, somewhat more common in large rather than small schools, and more common in the Northeast and North Central region. But an official policy, desirable as it is, is just an appropriate starting point. Gay students also need assured access to sensitive advocates, faculty mentors, and official support groups.

Two-thirds of the respondents to our student survey<sup>1</sup> knew of faculty with whom to discuss gay issues, but less than 10% indicated that this person had an official title. Students in large schools and those in the Northeast and West were more likely to know faculty with whom to discuss gay issues. An identified faculty liaison may be a great help to gay students, providing counseling and reassurance and directing them to both faculty mentors and to peer and community support. At LSUSM-NO, my role has included facilitating students' self-acceptance; dealing with the dilemma of selectively revealing sexual orientation (or not); residency selection; relationship issues; HIV status; and even an involuntary "outing" to the dean, in which

a student's sexual orientation was revealed without permission by a classmate.

Gay students at some other schools<sup>1,3</sup> have indicated their preference that the student-faculty liaison be gay, but they feel it more important that the liaison be readily accessible, that confidentiality be assured, and that students not be identified as gay merely by waiting outside the liaison's office. Such "nonidentification" can be assured if the liaison/advisor has multiple roles involving confidentiality. For example, at LSUSM-NO, any student, resident, or faculty member—irrespective of sexual orientation—might be seen at various times in the liaison's waiting area, which is located prominently in the clinical education building. The use of a multirole liaison who counsels house staff regarding a variety of concerns would work effectively in a teaching hospital as well.

## Successes and Failures

In recent years, the number of support services for gay medical students has been growing. Institutional support groups are more likely to be found in large schools, and in the Northeast

and West; support groups are more likely to be officially sanctioned in the North Central region and the Northeast.<sup>1,3</sup> In our most recent study, almost 70% of respondents reported a support group for gay and lesbian students at their school (either student- or university-organized), and 56%

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**"An identified faculty liaison may be a great help to gay students, providing counseling and reassurance and directing them to both faculty mentors and to peer and community support."**

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reported community-based groups exclusively for gay physicians in their area. Respondents from *all* schools expressed a desire for a support group, whether or not one existed; men were more likely than women to value an official recognition for such a group. "Fear of being openly gay" was the reason most often cited for lack of a support group.

Despite real progress, two-thirds of students in our most recent survey reported hearing antigay comments from a classroom instructor, 42% said that clinical faculty had made pejorative remarks, and 7% indicated that their homosexuality had been criticized personally by an instructor. Even at a school known to be supportive of gays and lesbians, one student reported being constantly reminded that "homosexuals are not entitled to respect and that disrespect is permissible."<sup>4</sup> In the clinical years, she was gratified when attending physicians spoke out against the mistreatment of gay patients, but she was still "horrified at the homophobic jokes, cartoons, and stories related...by...superiors about gay and lesbian patients." She reported hearing residents "warn students about working with known gay physicians." In 1994, the American Association of Physicians for Human Rights also reported that antigay language, including verbal harassment and discrimination, was widespread in medical schools.<sup>5</sup>

Our curricular surveys<sup>1,3,6</sup> demonstrate that the topic of homosexuality is taught mainly in lectures on human sexuality, followed distantly by panel presentations and meetings with gay men and lesbians. One faculty respondent noted the need for "an acceptable, less threatening way to teach [this topic]." We have speculated that discomfort in discussing gay issues stems from the lingering association of homosexuality with deviance and psychopathology. Or it may result from combining instruction about homosexuality and HIV, thus linking gay identity—rather than high-risk behavior irrespective of sexual orientation—with a frightening pandemic illness.

We suspect that the curricular marginalization of instruction about homosexuality trivializes the importance of the topic in the minds of faculty and students. We endorse the recommen-

dation of student and faculty respondents to our surveys that teaching about gay and lesbian patient care be wholly integrated throughout the curriculum. There should be regularly scheduled seminars and lectures on such topics as gay and lesbian development, relationships, and lifestyles; nonjudgmental sexual history-taking; and special problems and concerns of gay and lesbian patients. Further, we suggest that students' interaction with lesbians and gay men be assured, including frequent small-group discussion focused on homosexual issues. Students must be helped to confront their own attitudes and values about homosexuality, to be respectful of their gay colleagues, and to be caring with their gay patients. The challenge for academic medicine is to be more sensitive than society as a whole to the needs of lesbian and gay providers, patients, and students. □

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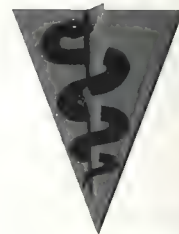
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# Gays, Lesbians, HIV Infection, and Admission to Medical School

## A Physicians' Roundtable



**Deputy Editor's note:** Never one to shirk controversy, your *North Carolina Medical Journal* posed a series of questions to representatives of medical school admissions committees at Duke University, East Carolina University, Bowman Gray School of Medicine, and the University of North Carolina at Chapel Hill. One dean (we're not naming names) actively discouraged us from pursuing these questions, saying we shouldn't be looking for trouble. This was equivalent to waving a red flag in front of the journalistic bull, so we pursued the matter even more vigorously. Three physicians, representing the admissions committees of two of North Carolina's medical schools, responded. We hope you find the exchange thought-provoking.—Edward C. Halperin, MD

**Journal:** *While interviewing an individual eminently qualified for admission to your medical school, the individual identifies himself or herself as gay or lesbian. How does this affect your decision-making?*

**Jennifer Taylor Fortney, MD, Duke:** This situation is not common in my experience. A medical school admissions interview is essentially a job interview, and I don't think the discussion of sexual orientation is appropriate in that context. It makes no difference to me whether or not a candidate is heterosexual or homosexual; that fact would not affect my evaluation of the candidate's fitness for admission.

An applicant who has been invited to an interview has been deemed academically qualified to attend the institution. The purpose of the interview is to determine whether the applicant has personal qualities that would make a superior physician and allow the candidate to interact positively with peers, patients, and teachers.

Candidates are evaluated in several areas: 1) Ability to build rapport with the interviewer in the limited time available (as physicians must do with their patients). 2) Evidence of altruism. (Most candidates have done some volunteer work. The interview looks to discover the depth of that activity, how personally involved the candidate became, what the candidate took away from the experience.) 3) Demonstration of an awareness of the political and economic issues that may effect medical careers in the future, and a knowledge of the community beyond the boundaries of their school. 4) Demonstration of some knowledge of what constitutes a medical career and of some thought about how to balance a professional and personal life. (Evidence that a candidate has been able to achieve superior academic grades while participating in a variety of

extracurricular activities implies that the candidate will be able to achieve the same balance in a medical career.) 5) Evidence of intellectual curiosity (significant involvement in research, participation in an honors program, independent study, a broad range of subjects studied in college). 6) A tolerance of diversity in cultural perspectives, and an ability to maintain a personal point of view while respecting those of others. Regardless of sexual identity, applicants who score highly in these areas would be very competitive for admission to medical school.

**Harold Kudler, MD, Duke:** Duke's policy is to not discriminate on the basis of sexual preference. This policy does not prevent committee members from having their own thoughts and feelings. I have mine. What follows is a personal response. It is worth pointing out that, in nearly six years on the committee, I cannot recall any applicant disclosing a gay or lesbian preference. I have probably interviewed gay, lesbian, and bisexual candidates who did not choose to bring the matter up. I would definitely take note if someone did. Part of my response would be surprise at, maybe even pleasure in, the applicant's candor. I suppose I would have a flash of anxiety too. I would hope to maintain my composure and listen to what the applicant was trying to tell me. If the candidate was trying to sell the idea that Duke needs at least one homosexual student to "round out" the class, I do not think I would be buying. On the other hand, if the applicant mentioned sexual preference in the context of involvement in the gay rights movement, concern about a lover with AIDS or experience with discrimination, I might learn something that would help the committee in its deliberations. I do not believe that the disclosure would prejudice me (or my colleagues) against the candidate to any significant degree. The real danger lies not in whether we accept gay or lesbian

students, it lies in becoming so obsessed with a single aspect of an applicant's life story that we stop listening to or thinking about this person who wants to be a doctor.

**Elizabeth S. Mann, MD, UNC-Chapel Hill:** If an applicant identified himself or herself as gay or lesbian, I would expect no systematic effect on the decision-making process of the committee. Every fact that we know about each applicant, how they offer information to us, how they seem to feel about what they choose to tell us, becomes part of the deliberations of each committee member. We are all well aware that details of candidates' personal lives are not appropriately a part of the process and do not form the centerpiece of any discussion. There is a gay and lesbian support group that functions as a recognized student organization within the school of medicine and is listed among the student organizations in the student handbook.

**Journal:** As you interview a person for admission to your medical school, the individual identifies himself or herself as being infected with human immunodeficiency virus (HIV-positive). Would this affect your decision concerning admission to medical school?

**Fortney:** The American With Disabilities Act, which became effective in 1992, specifically prohibits employers and public institutions from discriminating against qualified individuals because of their disabilities. An individual who is HIV seropositive is considered disabled under this act. It is, therefore, not permissible to deny admission to medical school to an individual who is qualified to attend simply because that individual is HIV-positive.

Medical and dental institutions have struggled for the past several years with the issue of protecting the rights of individuals and the rights of the public regarding HIV-infected health care workers. Several court decisions have established that hospitals can reassign HIV-infected employees who are deemed to pose a significant danger to patients. Until recently, there has been little information about the degree of risk imposed on patients by HIV-infected providers. Now the Centers for Disease Control has reported a study (as of January 1, 1995) of 64 health care workers infected with HIV. HIV tests were available on 22,171 patients who had been treated by 51 of these infected providers. No seropositive patients were reported among 13,063 patients treated by 37 of the 51 providers. There were 113 seropositive patients reported among the 9,108 patients cared for by the remaining 14 providers. Epidemiological and laboratory studies did not show the infected providers to have been a source of HIV for any of the patients.<sup>1</sup>

Since the risk of transmission of HIV from provider to patient appears negligible, what should be the response of medical institutions regarding their HIV-positive students and staff? In 1991, the CDC established guidelines for preventing the transmission of hepatitis B virus (HBV) and HIV during invasive procedures. Multiple institutions in several states have

developed policies for the HIV-infected health care workers that incorporate these guidelines.<sup>1-3</sup> For example, Michigan's guidelines,<sup>4</sup> established in 1991, state that:

- 1) All health care workers must adhere to universal precautions. All training institutions should teach the use of these techniques.
- 2) All workers at risk for HBV transmission should receive Hepatitis B vaccine.
- 3) A health care worker who exposes a patient to [the worker's] blood or other bodily fluids is ethically bound to inform the patient of the exposure and undergo testing.
- 4) Confidentiality laws must be followed to protect the identity of HIV-infected workers.
- 5) Limiting the activities of an HIV-infected health care worker is, generally, not necessary. Infected workers should perform invasive procedures only on the recommendation of health officials; they should be closely monitored for their compliance to universal precautions and their ability to carry out their responsibilities.
- 6) Notification of patients treated by an HIV-infected health care worker should be considered on a case-by-case basis, taking into consideration whether exposure has occurred, an assessment of risks, confidentiality issues, and available resources. Any public notification should be done in consultation with public health officials and the infected worker.
- 7) Infected health care workers who fail to comply with the above recommendations will be subject to sanctions.

On a personal level, I would be concerned that HIV-positive candidates for admission understand the risks to their own health posed by the physical stresses and exposure involved in medical training. It is my understanding that HIV-positive patients are counseled about the importance of sufficient sleep, nutritious diet, etc.—things that may be sadly lacking in a medical training regimen. In addition, medical personnel working in tertiary care centers are exposed to a wide variety of infectious diseases, some of which are drug-resistant. Such exposure could be a problem for someone with a compromised immune system. I would hope that infected candidates would seek medical counseling to optimize their chances of completing training without any further damage to their health. But I would not let the fact of HIV infection influence my evaluation of their candidacy. HIV-positive or not, applicants who score highly in the interview would be highly competitive for admission to medical school.

**Kudler:** If an applicant identified himself or herself as HIV-positive, I would certainly have to check my own pulse. No doubt my mind would flash to an image of this person in an operating room, blood dripping from a cut surgical glove into the patient's gaping incision. And then, just as surely, I would realize that, to the best of my knowledge, I have never contaminated a patient with my own bodily fluids. Yes, I have poked myself with needles, but I never took the same needle and jabbed it into a patient. I have never seen anyone bleed because of a cut glove.



There is very little chance that an HIV-positive doctor will infect his or her patients. The person most at risk in the medical setting is the HIV-infected doctor. Caring for the ill means exposing yourself to countless microbes. I hope I would be able to ask the applicant clearly if he or she has considered the risks involved and thinks them acceptable. Has the candidate considered the risks they may pose to others, even though those risks are small?

The Admissions Committee might want to consult medical and, perhaps, legal experts before finalizing its decision. My hope and expectation is that the committee would be cleared to consider the applicant on his or her own merit.

As for the projected life expectancy of HIV-infected applicants, until I hear that someone knows how long any of us will live or how long we have to practice "to repay the investment society made in our medical education," I won't worry about any particular applicant's potential life span.

**Mann:** If a candidate told us that they were HIV-positive, this fact would become part of what we know about the candidate, one fact among many. We would never seek this information. All our committee members know that this would not be an appropriate question to ask, so this information enters the record only if it was volunteered by the candidate. There are many features of every candidate, and medical history (of any kind) becomes a part of our discussion only at the discretion of the candidate. No single fact determines acceptance or rejection. It is impossible to know how the fact of HIV-positivity would weigh in the thoughts of individual voting members.

**Journal:** *After an appropriate interview, you admit an eminently qualified individual to your medical school. Several months later, at matriculation, the student indicates that he or she is HIV-positive, knew this at the time of application to medical school, but chose not to discuss it. The individual now wants information about coverage under the student health plan.*

**Fortney:** Once the disclosure of HIV-positivity is made, the student would be treated the same as any other HIV- or HBV-infected worker in our institution. A committee of the Employee Occupational Health Services would individually evaluate the student regarding the risk of transmission in the clinical care setting. Such evaluations are confidential. Decisions about work restrictions are based on current standards of care, and are reassessed periodically. Every attempt would be made to allow

the student to successfully complete clinical training with as little risk to the student or patients as possible. The student would be eligible to apply for the same medical coverage as all other medical students.

**Kudler:** So my new first year medical student is HIV-positive and didn't tell me about it during the admissions process? Well, I might wince at having been kept in the dark but this was the applicant's choice to make. Now, if I thought that the student had applied to medical school only to take advantage of the wonderful insurance benefits, I would be shocked! How could I have admitted this fool? This would be grounds for my resignation. On a more serious note, I would want to know how the student came to decide first not to disclose HIV status, then to disclose. Was the student afraid of not being accepted if we knew about the HIV infection? I would ask about the student's past experience with disclosures, about being infected, and about fears of how others will respond to an infected person. A conversation, already overdue, would just be starting. We would probably both benefit by it.

**Mann:** It is explicitly the case that candidates for medical school are under no obligation to discuss their medical history or status with us before admission. This candidate must clearly have been qualified and judged a desirable candidate for the study of medicine, so I have no problems concerning how the admissions process functioned in this case. The question is not whether HIV-positive persons should be barred from the study and practice of medicine, nor is it whether persons with HIV should subject themselves to this kind of stress. We are still developing our technical standards, but it is likely all candidates know that one thing expected of them is stamina.

Medical students are required to have health insurance either purchased through a group plan offered to matriculating students, or comparable coverage purchased elsewhere. Payment of the student health fee entitles enrolled students to basic primary care through the Student Health Service, and the offered insurance provides additional coverage. There is no explicit problem with HIV/AIDS as such, but there is a stipulation of a one-year delay in coverage of preexisting conditions.

Schools are obligated to protect both students and patients from foreseeable risks and harms. The problems posed in both the second and third questions above would necessarily lead to some limits on procedures that the student could be involved in, determined by the state of understanding and institutional policies at the time. □

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# Physician-Assisted Suicide

## A Bad Idea, Carroll and Kevorkian Notwithstanding

**Editor's note:** We publish commentaries that Drs. Harmon Smith and Dawn Brezina wrote in response to Dr. Carroll's piece in the Jan/Feb Journal, "Physician-Assisted Suicide: Lessons From the Kevorkian Trials," (NC Med J 1997;58:25-9).

### Part 1

Harmon L. Smith, PhD

One of my college teachers was fond of saying that it is difficult to tell who it is that does the most mischief, enemies with the worst intentions or friends with the best! A measured reading of Bernard J. Carroll's essay ("Physician-assisted suicide: lessons from the Kevorkian trials"<sup>1</sup>) suggests that, with his breathless hyperbole and ideologic distortion, he may have succeeded in being both.

### The Testimony of Historical Tradition

It is impossible to say that an action which causes another's death can never be condoned. But in an earlier essay<sup>2</sup> in this journal, I argued that both the moral traditions of Western medicine and Christian commitments hold that physicians are not meant to be agents of death. The evidence for this claim goes back to the earliest beginnings of Western civilization. Pythagoras, Plato, and Aristotle held suicide to be a crime against the community; Plato even argued that it was tantamount to a crime against God; and the Hippocratic Oath for physicians specifically includes the pledge that "I will give no deadly drug to any, though it be asked of me, nor will I counsel such."

Alongside his "new puritans," I suppose that Dr. Carroll must reckon these worthies to be "old puritans." Only by abandoning our traditions and making medicine ahistorical can Dr. Carroll advocate that physicians become accessories to their patients' deaths. His attempt to make a death-dealing action equivalent to other medical practices is not persuasive. Surgeons do in fact mutilate, and physicians do in fact prescribe poisons, but neither of these actions is meant as a harmful intervention; when successful, both enlarge health and well-being. In his enthusiasm for noninterference and noncoercion in the private transactions between physicians and patients, Dr. Carroll simply dismisses these time-honored customs and their commensurate practices. Instead, he

invites us to embrace again the now well-discredited notion of privatized Aesculapian authority under the guise of patient self-determination.

The historical and interpretive inaccuracies that mar Dr. Carroll's paper display its ideologic partiality, and his attempt to co-opt traditions that oppose his bias will not wash. Among several examples, two will suffice. It is true that "Within the Judeo-Christian tradition suicide is considered...an act of ultimate despair," but it is clearly not true that this is the presiding view or that "[this] view ignores a variety of suicidal behaviors that span a wide spectrum of moral contexts."<sup>1</sup> From the 2nd century onward, Christianity has condemned suicide. Christian literature since Augustine, especially the casuistical handbooks, has taken account of martyrdom and heroism as forms of self-sacrifice, but in neither of these cases is the choice of death egocentrically motivated. In these contexts, to put it differently, the choice is not for death but for a loyalty, a commitment, for which death *may, on rare occasion, almost certainly* be a consequence but not the primary desire.

Similarly, Orthodox Judaism teaches that suicide is wrong and that life is always to be preferred to death save in those instances where life can be purchased only through blasphemy, idolatry, or incest. There is considerable debate whether it is precisely true that "the defenders of Masada committed group suicide." If children died on Masada, they were almost certainly killed. Josephus' account in *The Jewish War* (Book VII) is that *all* of the deaths were murders, save the final one, which was by suicide (an account all the more remarkable since, as generally acknowledged, Josephus' Roman culture would have lead him to celebrate "the nobility of suicide"). Two women and five children are said to have survived Masada. Not surprisingly, Josephus' account may not be descriptively accurate in every detail, but it is accurate and detailed enough to make it plausible—not demonstrable fact, but plausible. No matter how these deaths

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occurred, they were clearly a means of avoiding capture and almost certain abuse and death at the hands of the Romans. But even if it is true that Jews committed suicide on Masada, and that modern Jews committed suicide rather than be sent to Holocaust concentration camps, generalizing from the particulars ignores the subtlety and complexity of these occasions. So one ought to inquire whether, and if so how, Masada or the Holocaust might qualify as exceptions to the general Jewish prohibition against suicide and the preference for life over death.

## An Ethical Quagmire

My friends who are lawyers tell me that the answer to Dr. Carroll's query ("why were Dr. Kevorkian's trials held?") is not mysterious: the prosecuting attorney and a grand jury in Oakland County, Michigan, believed that there was sufficient evidence to believe that a Michigan statute had been violated, that a crime had been committed. Instead of acknowledging that these people knew their job and were doing it, Dr. Carroll declaims that "(t)hese new puritans are dangerous people, driven by the classically psychoneurotic puritan dynamic of unconscious reaction formation."<sup>1</sup> This argument *ad hominem* is not substantive.

Inasmuch as autopsies and other evidence have shown that Dr. Kevorkian's subjects were *not* always in terminal stages of disease, and given the common knowledge that carbon monoxide is no medical treatment, a more interesting question is why the several juries have declined to convict. One answer comes from Methodist bishop Donald Ott, whose church is on record as opposing physician-assisted suicide: under questioning from the judge and lawyers during jury selection, he said "I told them that I believed that an individual should have the right to choose in a terminal situation their death...."<sup>3</sup> This revisionist view comports with Dr. Carroll's view of patient and physician autonomy.

To be perfectly honest, I've never really thought of myself—or of the AMA!—as part of a "conspiracy of the puritan right to subvert the professions of medicine and the law in pursuit of their neurotic agenda." But that is Dr. Carroll's view—that all who disagree with him must be "neo-puritans [who] are so dangerous [because] they do not respect professional boundaries and codes of conduct because they regard themselves as agents of a higher cause."<sup>1</sup> In brief, he is saying that ethics is not so much concerned with describing a life of virtue as with providing an expedient approach to perceived moral dilemmas, that theistic and other accounts of the sanctity-of-life in Western medicine are now indefensible and can therefore be set aside, and that there is no morally relevant distinction between killing and medical attendance to the dying patient. Dr. Carroll does not argue these points; he merely declares them.

It is true that, despite a burgeoning biomedical technology, no one can guarantee us relief from the pain and discomfort of irreversible illness or irremediable injury. Dr. Carroll's essay illustrates nicely how our modern resources for dealing with dying and death—maybe especially in the modern medical setting—are extraordinarily limited if not frankly impoverished. Unable to cure, Dr. Carroll declares we ought to help people kill themselves.

But his mere declaration fails to persuade. And why this kind of killing ought to be "medicalized" requires much further thought. When lethal injection was first adopted as the means for capital execution, the Oklahoma state legislature blithely assumed that the medical director in the state prison system would push the drugs. But he declined, asserting the same principle now affirmed by the AMA. If our society should decide to legitimate assisted-suicide, it must show why it is unreasonable or otherwise not feasible to put this practice into the capable hands of nonphysicians—rather like the executioners who push the drugs or throw the electric switches or release the trapdoors in capital executions.

## What the Past Told, The Future Holds

I am not clairvoyant and only seldom given to prophecy, but because Dr. Carroll's case for physician-assisted suicide is built on the twin foundations of "mercy" and "patient autonomy," I think it highly likely that social and professional boundaries will stretch far beyond the situations he describes. When autonomy is honored above all else, and when the assessment that pain and suffering are unbearable is entirely subjective, distinctions between terminal and non-terminal conditions evaporate. Indeed, I believe that requests for "suicide-assistance" will eventually be made on behalf of incompetent patients who have executed an "advance directive" request for assisted suicide; I expect that incompetent patients will be put to death based on the "substituted judgments" of well-intentioned others who will elect "suicide" on their behalf. For those who wish to consider this point, I highly recommend Michael Burleigh's *Death and Deliverance: 'Euthanasia' in Germany 1900-1945*, which brilliantly shows how the National Socialist decision to kill people had complex origins in politics, economics, religion, and medicine. Santayana's aphorism is apposite here: those who cannot remember the past are condemned to repeat it.

Dr. Carroll dismisses the dangers of the slippery slope, but we have inched out onto this treacherous moral terrain, although not overnight. Indeed, our foray onto the greasy gradient has taken us from *sanctity-of-life* to *respect-for-life* to *quality-of-life*, and now invites us to embrace physician-assisted suicide; I suspect it will lead eventually to selective



homicide. That move has been lubricated over several hundred years by the ascendancy of autonomous individualism together with various exceptions to the rule "do not kill." We have become increasingly callous about the inviolability of human life.

We should have had enough experience—American slavery, the European holocaust, the requirement of some states that physicians push lethal drugs in capital executions—to know that the flimsy reductionism used to warrant such behaviors is not a valid construction of either medical or social reality. No matter what criteria are initially used to constrain physician-assisted suicide, abuse will follow as assisted-suicide and overt killing become one.

A large part of our modern predicament derives from the relatively recent modification of the warrant for medical intervention. Historically, physicians were warranted to act only in the presence of a definitely diagnosed disease that was believed to be life-threatening (or later, function-inhibiting). Since Freud and Jung and the ascendancy of psycho-

social as well as biophysiologic criteria for "disease," doctors have been allowed to intervene virtually any time that any patient wanted, for any reason. It is a very short step from accepting individual definitions of pleasure and pain to permitting individual definitions of pathologic conditions (and what is appropriate to treat them). Then we will be able to say "So much for medicine as a fiduciary covenant or profession."

Paul Ramsey once observed that unless we agree upon the principles of virtue, we cannot agree upon the practice of virtue. More recently, Alasdair MacIntyre has persuasively argued that there can be no rational resolution of moral dispute in the absence of shared commitments. My personal view is that—in ways not dissimilar to the abortion controversy, which engenders bitterness and sometimes violence from proponents and opponents whose fundamental values are in conflict and unreconcilable—physician-assisted suicide represents a profound and serious threat to our moral imagination and our professional sensibilities. □

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## Part 2

*Dawn Brezina, MD*

In "Physician-assisted suicide: lessons from the Kevorkian trials," Dr. Carroll relates his experiences as an expert witness for the defense in the Michigan trial of Dr. Jack Kevorkian.<sup>1</sup> Unfortunately, his article, which broaches a very important and timely topic, degenerated into a diatribe against evil "puritans" and an aggressive vindication of Dr. Kevorkian. This emotionally charged issue deserves the presentation (and representation) of both sides, not a soap-box stand of ridicule and insults hurled at the opposition.

I do agree with Dr. Carroll that physician-assisted suicide is an important issue for society (and doctors) because most of us sympathize with individuals who have so lost control of their lives that they desire death. We can all relate to the fear engendered by the thought of a painful or degrading death.<sup>2</sup> I have seen patients suffer greatly because their physical deterioration has progressed beyond palliation, but fortunately, this is not the rule. Usually pain can be controlled adequately, and good hospice care allows most patients to "die with dignity." But I resent Dr. Carroll's characterization of those who opposed the Kevorkian position as being motivated by a "psychoneurotic puritan dy-

namic of unconscious reaction formation," and as delighting in "the sadistic dehumanization of suffering patients." Whether he was referring only to the prosecutors of the Kevorkian trial or more generally to all who oppose his views, I found his demeaning language offensive and inappropriate.

As patients approach the end of life, doctors try to ease their pain with morphine. Dr. Carroll seems to imply a Machiavellian motive, saying physicians "narcotize the patient with excessive amounts of morphine to the point of respiratory arrest, all the while humbly declaring [their] lack of skill in judging just how much pain the patient is enduring and begging the forgiveness of the relatives...." What is he talking about? The use of morphine? The double effect of pain relief and respiratory depression? Most of the doctors I know are forthright with the families of dying patients. These relationships do not become marred by "euphemism and obfuscation." Families are not kept ignorant of the fact that morphine may depress respiration and hasten death.

I take further exception to Dr. Carroll's comment that Dr. Kevorkian's most egregious fault lies in publicizing his

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work. This is a fault, but it is not his most glaring one. Dr. Kevorkian is a retired pathologist, a member of a specialty not renowned for doctor-patient relationships and certainly devoid of long-term patient care. Now, in his retirement, he has decided to aid humankind by helping individuals with serious illness commit suicide. These people are not Dr. Kevorkian's patients. They are not people he has followed for a period of time; they have not been referred by personal physicians who might corroborate the futility of therapy. As described in the article, Dr. Kevorkian makes his decision after an interview with the patient. I will agree with Dr. Carroll that these people must be suffering and that they seek out Dr. Kevorkian because the medical profession has not met their needs.

When it comes to physician-assisted suicide, I am much more inclined to see Dr. Timothy Quill as a role model. Dr. Quill, unlike Dr. Kevorkian, cares for his patient's as their physician (that is, healer). He tries to exhaust methods of treatment and palliation before assenting to a request for death.<sup>3</sup> But even in his case, I think we stand on the "slippery slope." Maybe physicians like Dr. Quill can meet the needs of these patients, maintaining the human touch, never pushing the patient into decisions, but will this be universally true? If physician-assisted suicide were to become legal, would every patient asking to die be thoroughly evaluated for depression and mental competence? How about every nursing home resident? I find it revealing that Dr. Harold Koenig<sup>4</sup> showed that it was young people who supported physician-assisted suicide; the elderly opposed it! It does not require much imagination to envisage the coercion of the old and debilitated to "end it all" and lighten the burden on society.

The AMA Code of Medical Ethics alludes to the compromise of physicians' role as healer if they render themselves as agents of death. Maybe some physicians can balance these positions, but I doubt that all can. What will happen when assisted suicide is no longer restricted to patients with end-stage disease, when people with early or limited disease find life unbearable because they "fear the end"? What will participation in assisted suicide do to doctors psychologically? What will it do to the doctor-patient relationship? Consider also the ramifications of reimbursement for services rendered. I cringe at the vision of a patient lying in bed with a lethal IV running, while the doctor makes a quick entrance to "be in the room" for billing purposes.

I also take exception to Dr. Carroll's statements that "the duty of a physician is always to relieve suffering" and that the "relief of suffering is not only a duty of the physician, it is at the same time a right of the patient." It may be the duty of a physician to always *try* to relieve suffering, but sometimes suffering cannot be relieved short of death. Suicide may be an option then, but assisting at suicide can never be

made a duty of the physician. The moral autonomy of the physician must be inviolate.

Physician-assisted suicide is a very complex issue with far-reaching moral and social implications. We sail uncharted waters, and we will benefit by proceeding with caution. A humanitarian case can be made for physician-assisted suicide, and with deliberation we may be able to ensure safeguards to limit abuse and expand the choices now available to dying patients and their physicians. But beware! This a Pandora's box! Who will police the process? Will families of demented patients suddenly decide that their "loved one" would rather be dead? As for me, I would rather continue in the role of healer. □

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# Left Ventricular Hypertrophy Impairs Detection of Myocardial Infarction in Patients With Nonischemic Cardiomyopathy

Danielle Melvin, Bimal R. Shah, BA, Charles Maynard, PhD, Bradley A. Bart, MD, and Galen S. Wagner, MD

The standard 12-lead electrocardiogram (ECG) is an inexpensive and useful clinical tool. It can identify a variety of cardiac abnormalities, including left ventricular hypertrophy (LVH) and myocardial infarction (MI). See Figure 1, next page. However, the ECG manifestations of an enlarged left ventricle can mimic the changes produced by a loss of cardiac muscle. Therefore, patients with LVH may falsely meet ECG criteria for the presence of MI.<sup>1</sup> Patients with cardiomyopathy (impaired myocardial function from various causes) may have LVH alone, MI alone, or both. Considering these competing effects on ECG waveforms is important in arriving at the true underlying diagnosis.

Three ECG methods are commonly used to detect LVH (Table 1, next page). The Romhilt-Estes method uses a scoring system that considers many aspects of the various ECG waveforms,<sup>2</sup> the

Sokolow-Lyon method considers S and R wave amplitudes in certain leads,<sup>3</sup> and the Cornell method considers voltage criteria according to gender.<sup>4</sup>

MI can be diagnosed using three of the 54 quantitative ECG criteria from a QRS scoring system developed by Selvester et al<sup>5</sup> (see below). These three MI screening criteria can sensitively identify the presence of anatomically defined infarction.<sup>6,7</sup>

In general, we would expect that individuals with LVH would develop true positive ECG criteria for LVH before they developed false positive criteria for MI, but this expected sequence might not always occur. The purpose of our study was to determine the specificity of the MI screening criteria in patients with ECG criteria for LVH. By examining patients with cardiomyopathies, but without MI or underlying coronary disease that might cause "silent" MI, we were able to determine the association of true positive ECG criteria for LVH with false positive criteria for MI.

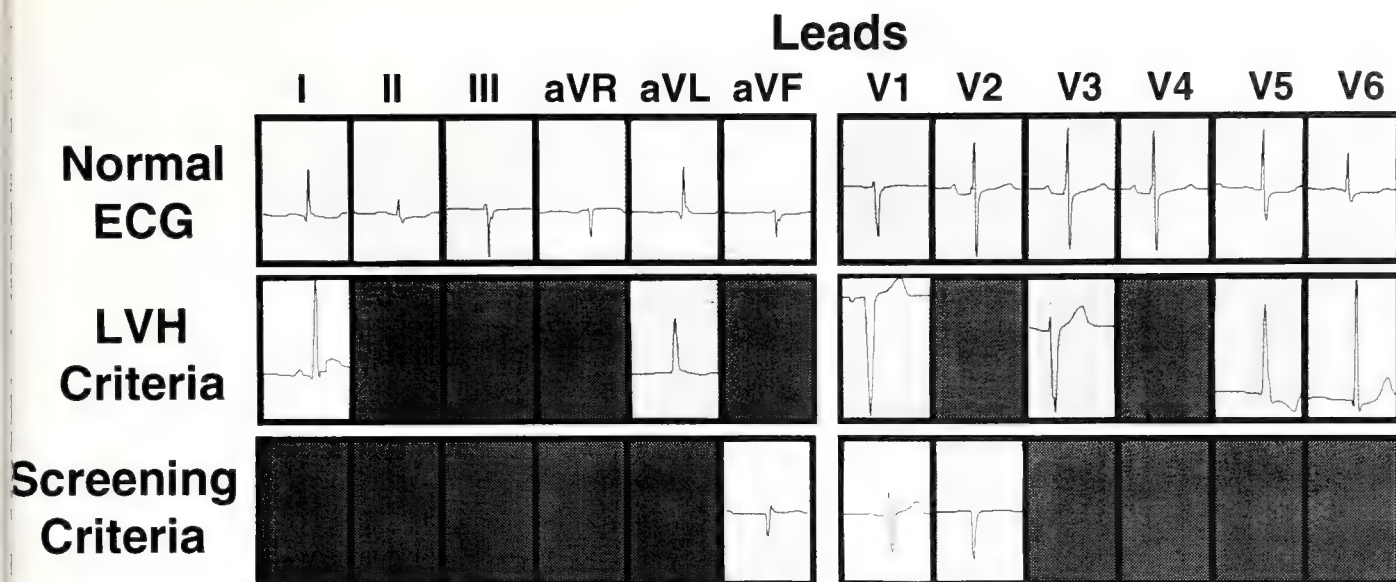
## Methods

**Patient population.** Between July 1, 1984, and December 31, 1991, 229 patients at

Duke University Medical Center underwent coronary angiography and transvenous endomyocardial biopsy to determine the etiology of a clinically diagnosed cardiomyopathy. Excluded were patients under the age of 10, those who had undergone cardiac transplantation, those whose left ventricular ejection fraction was  $\geq 60\%$ , and those who had undergone systemic chemotherapy, as well as patients with presumed ischemic etiology indicated by any angiographic evidence of coronary artery stenosis, history of MI, or of typical angina pectoris. All data were acquired from the Duke Database for Cardiovascular Disease and from the Duke University Medical Center Heart Station.

**ECG analysis.** All patients had a standard 12-lead ECG. Patients with the following ECG abnormalities were excluded: right ventricular hypertrophy (RVH) by Butler-Leggett criteria,<sup>8</sup> left bundle branch block (QRS duration for men:  $\geq 130$  ms; for women:  $\geq 125$  ms), right bundle branch block (QRS duration  $\geq 120$  ms), ventricular pacing, left anterior-superior fascicular block (QRS axis  $\geq -45^\circ$ ), left posterior-inferior fascicular block (QRS axis  $\geq 120^\circ$ ), or low QRS voltage ( $<0.50$  mV in any limb lead or

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**Fig 1:** Example cardiac cycles are shown in the various standard leads for a normal ECG (top), LVH criteria (middle), and the infarction screening criteria (bottom). The Romhilt-Estes indications of LVH include: in lead V1, left atrial enlargement is evident by the deep and broad P-wave ( $\geq 0.10$  mV and  $\geq 40$  ms); in lead V5, the ST segment is depressed and the T-wave is in opposite direction to QRS complex. Cornell LVH criteria are met by a tall R-wave in lead aVL and a deep S-wave in lead V3. Sokolow-Lyon LVH criteria are met by a deep S-wave in lead V1 and a tall R-wave in lead V6. The three Selvester MI screening criteria can be identified by the broad Q-wave ( $\geq 30$  ms) in lead aVF for the inferior region, a broad R-wave ( $\geq 40$  ms) in lead V1 for the posterior region, and a Q-wave or a small R-wave ( $< 10$  ms and  $< 0.1$  mV) in lead V2 for the anterior region. (Note: Examples of waveforms for the various leads in each category were obtained from multiple ECGs.)

$< 1.0$  mV in any precordial lead). The 123 ECGs that remained were screened for identifiable LVH using the three criteria listed in Table 1, at right. Each ECG was also examined for presence of either of two Selvester screening criteria for MI: 1) inferior location (Q wave  $\geq 30$  ms in lead aVF), or 2) anterior location (any Q wave, or R wave  $< 0.1$  mV and  $< 10$  ms in lead V2).<sup>5</sup> The Selvester criterion for posterior location (R wave  $\geq 40$  ms in lead VI) was not used because it may be caused by the right ventricular hypertrophy that commonly occurs in patients with cardiomyopathy.

**Data analysis.** We calculated the specificities of the MI screening criteria in the presence of none, one, two, or three of the LVH criteria. A chi-square test was used to compare the specificities of the MI screening criteria in the presence of LVH.

## Results

After all angiographic and ECG analyses were complete, 123 patients were

**Table 1. Electrocardiogram criteria for left ventricular hypertrophy**

### Romhilt-Estes scoring system for LVH

- |    |   |          |
|----|---|----------|
| 1. | R or S amplitude in any limb lead $\geq 2.00$ mV<br>or S in lead V1 or V2 $\geq 3.00$ mV<br>or R in lead V5 or V6 $\geq 3.00$ mV    | 3 points |
| 2. | Left ventricular strain<br>ST segment and T wave in opposite direction to QRS complex   | 3 points |
| 3. | Left atrial enlargement<br>Terminal negativity of the P wave in lead V1 is $\geq 0.10$ mV in depth and $\geq 0.040$ sec in duration |          |
| 4. | Left axis deviation of $\geq -30^\circ$   | 2 points |
| 5. | QRS duration $\geq 0.09$ sec  | 1 point  |
| 6. | Intrinsicoid deflection in lead V5 or V6 $\geq 0.05$ sec  | 1 point  |

### Total

**13 points**  
(LVH = 5 points, probable LVH = 4 points)

### Sokolow-Lyon criteria for LVH

S wave in lead V1 + R wave in lead V5 or V6  $> 3.50$  mV  
or R wave in lead V5 or V6  $> 2.60$  mV

### Cornell voltage criteria for LVH

Women: R wave in lead aVL + S wave in lead V3  $> 2.00$  mV  
Men: R wave in lead aVL + S wave in lead V3  $> 2.80$  mV



eligible for this study. Their average left ventricular ejection fraction was  $29\% \pm 12\%$ , and their average age was 45 years  $\pm 14$  years. Fifty-eight percent of the population were men. A total of 52 of the 123 patients (43%) met ECG criteria for LVH; 23 (19%) met only one criterion, 19 (15%) met two criteria, and 10 (8%) by all three.

The specificity of the ECG screening criteria for MI was 83% in the overall study population. These criteria had a specificity of 90% in the 71 patients with no ECG criteria for LVH, but only 73% in the 52 patients who met at least one LVH criterion. These results are significantly different from one another ( $p=0.013$ ). The specificities of the MI screening criteria in patients with LVH as determined by one, two, and three criteria were 70%, 79%, and 70%, respectively (Table 2, above). The specificity of the MI screening criteria in patients meeting just one criterion for LVH was significantly lower than for patients without LVH ( $p=0.016$ ). Thus, the presence of even a single criterion for LVH significantly increased the likelihood of a false-positive diagnosis of MI.

## Discussion

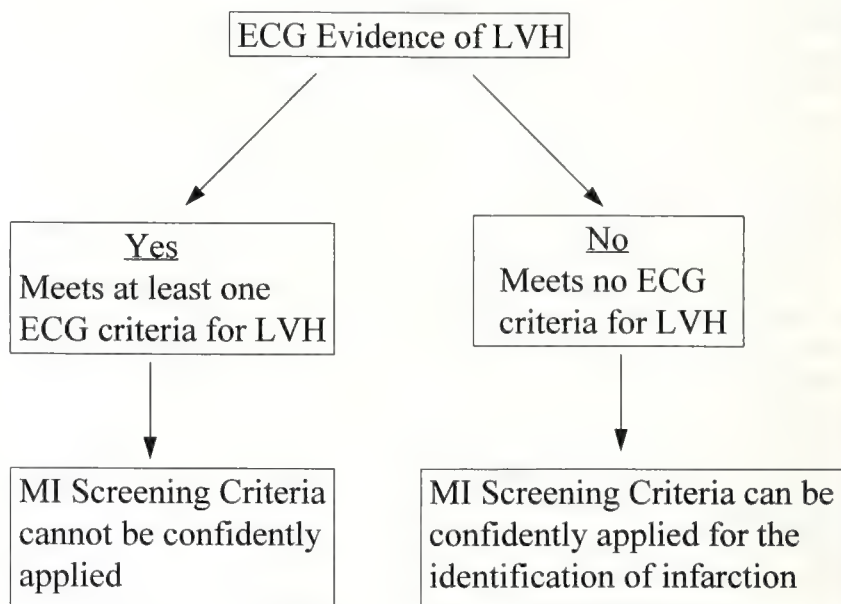
The specificity of MI screening criteria in normal subjects is 95%,<sup>5</sup> but only 78% in patients with LVH due to aortic valve disease. The presence of LVH appears to lower the specificity of ECG criteria for MI.

LVH may also occur either during the development of, or in compensation for decreased cardiac function in patients with cardiomyopathy. The present study shows that the specificity of MI screening criteria in patients with nonischemic

**Table 2. Specificity of myocardial infarction screening criteria**

	SC* yes (N=)	SC no (N=)	Total (N=)	Specificity of SC
<b>No ECG confounders</b>	7	64	71	90%
<b>At least 1 LVH criterion</b>	14	38	52	73%
<b>1 LVH criterion</b>	7	16	23	70%
Romhilt-Estes alone	2	0	2	0%
Sokolow-Lyon alone	0	6	6	100%
Cornell alone	5	10	15	67%
<b>2 LVH criteria</b>	4	15	19	79%
Romhilt-Estes & Sokolow-Lyon	2	6	8	75%
Romhilt-Estes & Cornell	2	7	9	78%
Sokolow-Lyon & Cornell	0	2	2	100%
<b>3 LVH criteria</b>	3	7	10	70%
<b>Patient population</b>	<b>21</b>	<b>102</b>	<b>123</b>	<b>83%</b>

\* SC = MI screening criteria



**Fig 2:** When examining a population of patients with cardiomyopathy, ECG evidence of LVH must be considered before application of the MI screening criteria.

cardiomyopathy who have no LVH (by ECG criteria) is 90%, approaching the 95% level of the normal population. However, specificity is decreased to 70% when only one criterion for LVH is present. Specificity does not decrease further when two or even all three of the criteria for LVH are present. Our findings suggest that patients with nonischemic cardiomyopathy may have LVH-induced abnor-

mal QRS morphology that mimics the changes caused by infarction. Thus, the use of standard MI screening criteria in patients with nonischemic cardiomyopathy may lead to an erroneous (false-positive) diagnosis of MI in almost one-third of those meeting any ECG criteria for LVH (Figure 2, above). The findings of the present study indicate that ECG evidence of LVH should be considered prior

to the application of screening criteria for MI. In patients with cardiomyopathy, the presence of even one criterion for LVH means that screening criteria should not be used to determine the presence of MI.

We assumed that the specificity of ECG criteria for MI in patients with no evidence or history of coronary disease or myocardial ischemia ought to approach that of normals. Indeed, we found that the

combined screening criteria for inferior and anterior MI had a specificity of 90% in cardiomyopathic patients with no coronary disease and no ECG evidence of LVH. This specificity is only slightly lower than the 95% documented in normal subjects.<sup>5</sup> The confidence with which the MI screening criteria can be applied in cardiomyopathic patients with *no* evi-

dence for LVH must still be more accurately determined. Studies currently in progress will more precisely establish the specificity of the MI screening criteria in patients with nonischemic cardiomyopathy who meet no LVH criteria. These studies may help establish ECG criteria to differentiate the ischemic from nonischemic etiologies of cardiomyopathy. □

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# Carolina Physician's Bookshelf

Book review editor: Edward C. Halperin, MD, Professor and Chair,  
Department of Radiation Oncology, Box 3085, Duke University Medical Center, Durham 27710

***Entitlements and the Elderly:  
Protecting Promises, Recognizing Reality***  
By Marilyn Moon and Jane Marie Mulvey  
Washington, DC: Urban Institute Press,  
ISBN/ISSN 3087766636-9, \$19.95

Reviewed by Eben Alexander, Jr., MD, professor emeritus,  
Dept. of Neurosurgery, Bowman Gray School of Medicine,  
Winston-Salem, and Journal associate editor

This small, thoughtful, focused book is an excellent guide to the complexities of entitlements for the elderly, one that reflects the authors' concerns about the justice of American culture in supporting the elderly.

The authors write with precision and economy. They divide the book into very short sections that present, clarify, and summarize major points. The book begins with "the big picture"—a recent history of the political approaches to balancing the US budget and how these approaches affect entitlements. Next is a summary of future entitlements followed by excellent succinct chapters, the first of which is titled "Myths About the Elderly." Large charts show poverty rates among the elderly, the effectiveness of entitlements in changing those rates, and much more factual information.

The chapter on understanding entitlements is particular appropriate since the word "entitlements" has assumed an undeserved pejorative reputation. The conclusion of that short chapter is worth quoting:

"Both those who argue for no change under any conditions and those who would dramatically cut successful programs, do a disservice to the goal of finding workable solutions to the future challenges that entitlements will surely face."

The authors believe that the three main features of entitlements, Social Security, Medicare, and Medicaid, are so entangled that they need to be thought of as a single project. There are chapters dealing with these three important programs. In dealing with the issue of Medicaid, the following quote illustrates the objective way in which the authors approach all of the various controversies.

"Making everyone use their own assets before becoming

eligible for benefits sounds better in theory; in practice, enforcing such behavior has proven to be problematic, thus, the welfare nature of the program creates problems for both government and the public. The bottom line issue is whether enough is saved through those stringent spend-down requirements to justify the dissatisfaction and abuse that has developed around Medicaid."

There is a meaningful, balanced discussion about long-term care, a problem that seems to be unsolvable at the present time.

The last chapter is titled "A Combination Approach to Entitlement Reforms" and takes a balanced approach in its discussion of this subject. The authors write:

"The most important linkage to consider, however, is the well-being of Americans of all ages and understanding the effects on that well-being of policy changes and programs crucial to older Americans. Since many of the large changes being contemplated in the current discussion about entitlement reform will alter the economic well-being of seniors directly, we should evaluate what changes are equitable and desirable in the broader context of the well-being of all Americans. We need to move beyond the myths about the elderly and the myths about entitlements in order to allow honest discussion of options and impacts, one in which numerous possibilities are examined and debated to ensure that reasoned choices are made."

Practicing physicians will find this short, well-organized book interesting because it provides a better understanding of the intimately interwoven Social Security, Medicare, and Medicaid programs that are parts of our magnificent health care system. The authors believe that these agencies are interdependent and all require changes, and they offer clear insight into what the changes in one will make in the others. In the recent presidential campaign, much of the rancor was related to these elements, each side blaming the other for anticipated problems. The authors are not arbitrary about their suggested modifications. But in a clear and logical manner, they express what they think needs to be done by our federal government. The authors' view of health care policy will make the physician's understanding of the whole subject more clear and perhaps make the care of patients more enjoyable. □

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# Oxygen and Cancer

Toby Dunn, MSIV

**Deputy Editor's note:** One of the great pleasures of this job is the ability to publish the first peer-reviewed paper of young authors. Mr. Dunn, a fourth-year Duke medical student, has recently completed a year of research. He's provided our readers with a succinct review of tumor oxygenation. We're delighted to publish this paper and we wish Mr. Dunn every success in the future.—Edward C. Halperin, MD

The microenvironment surrounding solid tumors plays an important role in whether (and how) malignancies progress, and in the effectiveness of anticancer treatments. No single environmental factor is as important as the availability of oxygen. We have known since 1955 that tumors are hypoxic relative to normal tissue,<sup>1</sup> and the topic of tumor oxygenation has been heavily studied ever since. Tumor hypoxia results from a combination of an inadequate blood supply and an excessive oxygen demand.

## Tumor Metabolism

Malignant proliferation and aberrant metabolism both elevate the metabolic rate of tumors. The oxygen consumption rate of proliferating cells is three to five times higher than that of cells not actively dividing.<sup>2</sup> This is not surprising since cellular proliferation requires both the replication of cellular organelles and chromosomes, as well as the physical division of the "mother" cell into two "daughter" cells—both metabolically demanding processes.

Cellular respiration (that is, energy production) consists of three separate but linked pathways: glycolysis, the citric acid cycle, and oxidative respiration. Both normal and tumor tissues generate pyruvate from the breakdown of glucose via the glycolytic pathway. When oxygen and nutrient supply are adequate, pyruvate is converted to acetylCoA, which enters the citric acid cycle within mitochondria. The citric acid cycle generates energy directly in the form of ATP, and indirectly in the form of reduced electron carriers such as NADH and FADH<sub>2</sub>. In the presence of oxygen, these reduced electron carriers then generate ATP via cytochrome oxidases.

Anaerobic metabolism occurs when oxygen is not present in sufficient amounts (as in many tumor cells; see below). The breakdown of glucose then generates lactic acid rather than pyruvate. Lactic acid generation does produce ATP, but anaero-

bic glycolysis is relatively inefficient because lactate cannot enter the citric acid cycle where the bulk of energy production occurs. Tumor cells sometimes use the less efficient anaerobic glycolytic pathway even when oxygen is present in sufficient amounts.<sup>2</sup> In any case, the result is an excessive production of lactate, which when coupled with poor removal of lactate because of inadequate perfusion, leads to an acidic environment within the tumor. The acid microenvironment affects oxygen delivery through its effects on the fluid mechanics of blood flow and the oxygen-hemoglobin dissociation curve. Acidic conditions decrease the normal deformability of red blood cells. Less deformable red cells decrease microvascular flow rates, since red cell plasticity is necessary for flow. Furthermore, acidic conditions cause a rightward shift of the oxygen-hemoglobin dissociation curve that favors unloading of oxygen.

## Tumor Oxygen Supply

**Angiogenesis.** Under normal circumstances such as wound healing, the growth of new vessels begins with mitosis and migration of the endothelium of adjacent post-capillary venules to form vascular sprouts. As the new vessels mature, they produce an endothelium with associated pericytes, smooth muscle cells, basement membrane, and neurovascular structures. The maturation process leads to an orderly vascular bed in which blood flow and permeability are carefully regulated. Furthermore, normal angiogenesis stops once sufficient perfusion has been achieved, leaving a vascular architecture appropriately ordered for tissue perfusion. The vessels supplying tumors initially derive from the normal tissue surrounding the developing tumor mass, but angiogenesis within the tumor has several critical differences from normal that affect vessel structure and function.

**Vascular structure and function.** New vessels that form within

a tumor have structural abnormalities that contribute either directly or indirectly to tumor hypoxia (Table 1, at right). The most important of these is simply the density of vessels in tumors (estimated to be 25% of that of normal subcutaneous tissue).<sup>3</sup> The difference in vessel number is exaggerated by the relative decrease in arteriolar (and thus oxygenated) vessels and by the presence of sinusoids and arteriovenous shunts, which further decrease the functional capacity of the vessels.

The rate of diffusion of any substance (such as oxygen) from the vascular lumen to a tumor cell is directly proportional to the concentration gradient of the substance from vessel to tissue, and indirectly proportional to the diffusion distance. A low vascular density means that oxygen must diffuse longer distances in order to reach tumor cells, and this is one reason for tumor hypoxia. Furthermore, the disordered and heterogeneous organization of tumor vessel architecture results in local areas of relatively severe hypoperfusion and hypoxia. Areas of focal necrosis occur within solid tumors in areas that are furthest away from vessels and have the lowest oxygen tensions.<sup>1</sup>

Not only are vessels abnormal, but the intra-arteriolar concentration of oxygen is lower in tumors compared to arterioles of similar size in normal tissue.<sup>4</sup> This must mean that a significant proportion of oxygen has been unloaded even before blood enters the capillary bed. The decreased intravascular oxygen content means a decreased concentration gradient for the diffusion of oxygen, which already must diffuse greater distances to reach tumor cells because of the decreased vascular density.

A lack of lymphatic vessels within the tumor parenchyma also plays an important role in tumor hypoxia. The decreased rate of interstitial fluid drainage produces high interstitial pressure in tumors. In addition, the intravascular pressure of tumor capillaries and post-capillary venules is decreased relative to normal tissue. The combination of decreased intravascular and increased interstitial pressure tends to collapse vessels within the tumor, further decreasing the effective functional vascular density. Another result of the increased interstitial and decreased intravascular pressure is intermittent flow stasis and flow reversal in tumors,<sup>5</sup> a phenomenon that is thought to contribute to resistance to radiotherapy.

The presence of arteriovenous shunts within tumors further contributes to tumor hypoxia by reducing blood flow through tumor capillaries. A low pressure shunt can decrease tumor blood flow by as much as 40%.<sup>6</sup> Arteriovenous shunts within the tumor itself may divert blood flow away from functional vascular beds.

Tumor microvessels are more permeable than normal due to a relative lack of basement membrane and incomplete endothelialization. Increased permeability leads to the extravasation of macromolecules that are usually retained within the intravascular space. These macromolecules accumulate in the interstitial space, further increasing the interstitial pressure and causing collapse of vascular beds.

Rate of fluid flow in a vessel is governed by two independent variables: 1) the geometry of the vessel, and 2) the

**Table 1. Structural abnormalities in tumor vasculature**

1. decreased vascular density
2. heterogeneous distribution of microvessels
3. relative lack of arteriolar vessels
4. presence of sinusoids and arteriovenous anastomoses
5. absence of lymphatics
6. incomplete endothelial surface
7. incomplete or absent basement membrane
8. absence of smooth muscle and pericytes

viscosity of the fluid (blood). Blood flow is directly proportional to the pressure gradient and vessel diameter and inversely proportional to blood viscosity and vessel length:

$$\text{rate of flow} \sim \frac{\text{change in pressure} \times \text{vessel diameter}}{\text{viscosity} \times \text{vessel length}}$$

The flow equation has important implications for tumor biology. Tumors characteristically have a reduced pressure drop across the vascular bed and an increased vascular length, both of which tend to decrease tumor blood flow; on the other hand, the increased diameter of tumor vessels tends to favor an increase in blood flow. However, the flow equation given above applies to rigid tubes and does not take into account the fact that small drops in perfusion pressure produce disproportionately large increases in resistance due to collapse of vessels. Blood viscosity is determined largely by the hematocrit, but the tumor microenvironment does influence blood viscosity. The acidity and hypoxia found within tumors causes red blood cells to lose some of their normal plasticity.<sup>6</sup> This leads to an increase in viscosity, and consequently a decrease in blood flow for a given perfusion pressure.

**Anemia.** Anemia is common in cancer patients. It is the result of many factors, including excessive red blood cell destruction (autoimmune, traumatic, or drug-induced), impaired red blood cell production (impaired marrow function; iron deficiency; folic acid deficiency; drug-induced), and bleeding. In some studies, the presence of anemia emerges as a negative prognostic factor in patients with cancer. Anemic patients have decreased local control and decreased disease-free survival after standard treatment for cervical cancer, but mild-to-moderate anemia probably has little effect on oxygen supply at the cellular level because compensatory increases in cardiac output are usually sufficient to maintain adequate oxygen delivery.

## Effects of Hypoxia

The effects of hypoxia within tumors are as varied as the causes of the hypoxia (Figure 1, next page). They include reduced sensitivity to ionizing radiation and some chemotherapeutic agents, as well as modification of gene expression that may alter

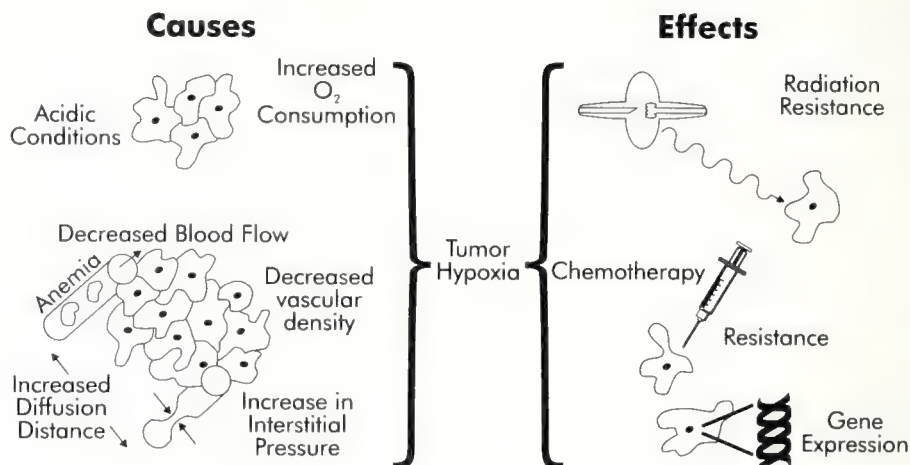


tumor phenotype. The relevance of tumor hypoxia is underscored by several recent studies demonstrating the prognostic value of the presence or absence of tumor hypoxia in both cervical cancer<sup>7</sup> and soft tissue sarcoma,<sup>8</sup> independent of clinical stage or histologic grade.

**Radiation resistance.** Radiation induces cellular damage through the formation of oxygen-based free radicals that react directly and indirectly with DNA. In vitro data showing a direct correlation between cell killing and tissue oxygen tension have led to the determination of an oxygen level ( $PO_2$  of 3-5 mm Hg) below which radiation-induced cell killing is markedly reduced compared to the effects at normal oxygen tensions. Under hypoxic conditions much higher doses of radiation are needed to achieve the same therapeutic result. Recent studies have demonstrated that the oxygen tension within a solid tumor is not uncommonly at or below the critical level. A recent clinical study demonstrated that the presence of pretreatment hypoxia diminished the control achieved with radiotherapy in patients with advanced carcinoma of the cervix.<sup>7</sup>

**Drug resistance.** Hypoxia contributes to chemotherapeutic resistance by: 1) direct effects (some drugs require oxygen to be maximally cytotoxic), 2) indirect effects (altered cellular metabolism decreases drug cytotoxicity), and 3) genetic effects (genetic instability of the tumor leads to development of drug-resistance). Furthermore, hypoxic cells tend to be quiescent, lessening sensitivity to drugs (including etoposide, doxorubicin, bleomycin, and several alkylating agents) that require active cell cycling for maximal cytotoxicity. And finally, reduced perfusion limits the delivery of all drugs to a tumor.

**Gene expression.** Although hypoxic alterations in gene expression may be a normal adaptive response (for example, upregulation of erythropoietin synthesis in patients with anemia), the effect of hypoxia on tumor cells may be maladaptive. Tumor proteins that are known to be induced by hypoxia fall into three classes: 1) cell cycle regulatory proteins, 2) hematopoietic/vascular regulatory proteins, and 3) metastasis-promoting proteins. Furthermore, hypoxic stress has been implicated in the upregulation of several oncogene pathways.<sup>9</sup> Thus, intratumoral hypoxia may activate particular genes and pathways to produce a more malignant phenotype.



**Fig 1:** Tumor hypoxia is the result of increased oxygen consumption, decreased vascular density, acidic conditions, decreased blood flow, anemia, and increased interstitial pressure. Hypoxia results in radiochemotherapeutic resistance and altered gene expression.

## Strategies to Reduce Tumor Hypoxia

Many attempts have been made to increase tumor oxygenation with the expectation that this would increase the response to treatment.

**Increasing tumor blood flow.** Much effort has been focused on exploiting the differences between normal and tumor vasculature in hopes of selectively increasing tumor perfusion. These efforts have been thwarted by the "vascular steal" that occurs with the administration of vasoactive drugs. Giving a vasodilator such as hydralazine causes vasodilation of both tumor and normal arterioles. This actually lowers perfusion pressure and selectively collapses vessels within the tumor due to increased interstitial pressure. The overall result is a decrease in tumor perfusion and tumor oxygen delivery relative to normal tissue.<sup>10</sup>

**Oxic gases.** Increasing the oxygen content of inspired air ought to reduce tumor hypoxia. An increased amount of oxygen dissolved in plasma will increase the concentration gradient, promoting increased diffusion distances. However, the induction of complex physiologic effects such as vasoconstriction and reduced tumor perfusion means that breathing oxic gases (normobaric and hyperbaric oxygen and carbogen [95% $O_2$ , 5% $CO_2$ ]) does not necessarily increase tumor oxygen delivery.<sup>4</sup> These gases also do not reduce the intermittent or "acute" hypoxia that results from arteriolar vasoconstriction. Some of the many clinical trials of oxic gases have shown limited benefits in certain patient populations, but the results of most trials have been disappointing. Current research focuses on defining the mechanisms by which these gases exert their physiologic effects. A better understanding of the mechanisms

involved might lead to interventions which could return these gases to clinical use.

**Blood substitutes.** Perfluorocarbons are inert emulsions that possess an extremely high solubility for oxygen. They were initially developed as battlefield blood replacements. In animal models, the use of blood substitutes in combination with oxic gases significantly increases tumor sensitivity to radiation and certain chemotherapeutic agents. However, several human clinical trials have failed to demonstrate significant benefits in local tumor control or long-term outcome.<sup>11</sup>

## Future Directions

**Manipulation of oxygen consumption.** Research efforts so far have focused on relieving tumor hypoxia by increasing oxygen delivery, but have largely ignored the possibility of decreasing oxygen consumption. A mathematical model of tumor hypoxia found that the elimination of tumor hypoxia would require either: 1) a 30% reduction in oxygen consumption; 2) a 400% increase in blood flow; or 3) an 1100% increase in  $PO_2$ .<sup>12</sup> It is obvious that any attempt to alleviate tumor hypoxia should not neglect the contribution of oxygen consumption.

**Selective targeting of hypoxia.** Hypoxia has long been considered a hurdle that must be overcome in order to make solid tumor therapy more efficacious. The basis for all cancer therapy lies in exploiting differences between normal and tumor cells, but only recently have research efforts begun to focus on treatment strategies that selectively target hypoxic cells. Several chemotherapeutic agents (including the bioreductive drugs Mitomycin C and tirapazamine) are known to have increased activity in hypoxia.

Hypoxic cells can be selectively targeted by strategies that

decrease rather than increase tumor blood flow. A reduction in tumor blood flow would lower oxygen tensions even further, increasing the cytotoxicity of bioreductive drugs. One such strategy, although it seems almost paradoxical, is the use of cell-free hemoglobin. The presence of cell-free hemoglobin in the intravascular space scavenges the endogenous vasodilator nitric oxide, producing vasoconstriction and decreased perfusion.<sup>13</sup> Another potential strategy involves the use of vasodilators such as hydralazine to produce a decrease in tumor perfusion by causing "vascular steal" as mentioned above.<sup>10</sup>

## Summary

Tumor hypoxia results from multiple pathophysiologic interactions. Abnormalities in tumor vessel structure and function lead to decreased oxygen delivery relative to normal tissue. Furthermore, a relatively high rate of tumor cell proliferation increases oxygen consumption by tumor tissue. The net result of decreased oxygen supply and increased oxygen demand is hypoxia. Hypoxia makes tumors resistant to radiation and some chemotherapy, and it induces expression of growth factors, angiogenic factors, and cell cycle regulatory proteins that affect tumor phenotype. Recent attempts to make tumors more sensitive to radiation and chemotherapy by reducing hypoxia (by increasing tumor blood flow, the use of oxic gases, and blood substitutes) have been ineffective. Future research may be directed more toward decreasing oxygen consumption or actually exploiting the hypoxic environment to achieve a therapeutic benefit. □

**Acknowledgment:** The author thanks Drs. Mark W. Dewhirst and Edward C. Halperin for their assistance in the preparation of this paper.

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# “Grow Dumb Along With Me”

## Misuse of DHEA (Dehydroepiandrosterone)

Ronald B. Mack, MD

I hope that Robert Browning, the great English poet, forgives me for tampering with his work. He died in 1889, in Venice, and I believe he would not be angry at my humble reformulation of his famous lines: “Grow old along with me! The best is yet to be, the last of life, for which the first was made.”<sup>1</sup> Unlike some of today’s senior citizens he did not appear to fear old age or take steps to halt the process—but, of course, he did not have access to the adrenal hormone dehydroepiandrosterone, DHEA.

When you read the hype surrounding this substance, referred to and marketed as a “food supplement” in health food stores, you wonder if there is any hope for the American people as we enter the 21st century. Surely, the least the public can expect is that its medical leaders will use the scientific method. We should not reduce ourselves to the level of “snake oil” salespeople, believing the fallacy of *post hoc ergo propter hoc* (“after this therefore before this”—the idea that snow *causes* springtime because January snows precede May flowers).

DHEA is being touted as an “antidote for aging,”<sup>2,3</sup> an “elixir from the Fountain of Youth,” the answer to the prayer of those who groan when getting out of bed or rising from a chair, who long to chase members of the opposite sex (if we could only remember what for and if we were still capable of transferring our DNA). DHEA is being touted as a super hormone<sup>3</sup> to help burn fat, boost libido, build muscle, strengthen the immune system, retard memory loss (I wish I could remember where I read that), prevent Type II diabetes mellitus, prevent cancer and heart disease, even prevent or delay the progression of Parkinson’s and Alzheimer’s diseases. And have there been large, randomized, placebo-controlled clinical trials to prove these “benefits”? Nope!

### The Beginnings of Clinical Science

You do remember clinical trials, don’t you? They date back to the 18th century when John Lind<sup>4</sup> used this method to determine the cause of scurvy in British sailors. He evaluated six different treatments for scurvy in 12 patients; one of the two given oranges and lemons recovered quickly enough to return to duty after six days. Contrast this with a report from October 1996, looking into a method for cerumen removal promoted by some alternative health care practitioners.<sup>5</sup> This so-called treatment consists of placing a hollow candle in the external auditory canal and lighting the open end. The lighted candle is supposed to create a vacuum which draws cerumen and other debris from the external auditory canal. (I hope that this method will never be used to treat recalcitrant constipation. Perish! Forbid!) The authors of the paper, to their credit, performed a clinical trial; they found no vacuum and no cerumen removal.

The concept of randomization was introduced into clinical trials in 1926,<sup>4</sup> and the principle of “blindness” in clinical trials was used by Amberson in 1931.<sup>4</sup> Only in the past three decades has the clinical trial, as we know it, come to be the preferred method of evaluating medical interventions. A clinical trial is defined as a prospective comparison of the effect and value of some intervention(s) with a control intervention (such as a placebo) in human subjects. An ideal clinical trial is one that is randomized and double-blinded (neither the experimenter nor the experimentee knows which intervention is being applied in a given case). A clinical trial is considered, at least in this part of the 20th century, to be the most definitive way to determine whether an intervention has the postulated effect. Do we have this kind of evidence for DHEA? Not so you’d notice! But physicians in this country, *in this state*, prescribe this product. I say again, our patients have the right to expect from us the highest scientific approach to diagnosis and treatment available, employing the scientific method as a minimum. Hypothesis testing, not empiricism, will set us free!

Dr. Mack is Professor, Department of Pediatrics, Bowman Gray School of Medicine, Medical Center Boulevard, Winston-Salem 27157.

## DHEA, a Hormone in Search of a Job

Just what is DHEA, you ask. It is a hormone produced in extremely large quantities (usually as the sulfated form, DHEA-S) by the adrenal cortex of primates and a few nonprimate species.<sup>3,6</sup> DHEA-S is the most abundant steroid found in the circulation.<sup>7</sup> It is the major constituent of the known 17-ketosteroid hormones of human blood plasma. It is considered the "universal precursor"<sup>3</sup> of a number of androgens and estrogens made by peripheral tissues to supply local requirements. Apparently, individual tissues use a series of DHEA-metabolizing enzymes to transform it into more physiologically active sex steroids. Plasma DHEA-S levels are quite high in newborn infants, but fall remarkably within the first few months of life and remain low until age seven years. Blood levels of DHEA increase during the phase of puberty known as adrenarche,<sup>6,7</sup> peak between the ages of 15-25 years, and decrease steadily after the third decade to reach negligible levels in senior citizens<sup>3</sup> (when I had my level appraised recently the report said: Is this geezer still alive? His level is QNS.) The average serum level of DHEA-S in men 25-34 years of age is  $6.44 \pm 2.29$  mmole/L; but in those aged 75-84 years it is  $1.15 \pm 0.52$  mmole/L; over the same time span, DHEA levels fall from  $15.91 \pm 6.05$  mmole/L to  $5.36 \pm 1.68$  mmole/L.<sup>8</sup> The rate of decline of both hormones is relatively constant at approximately 2% per year. In young women, blood levels are 10%-30% lower than in young men but the sex differences appear to narrow with age (how politically correct). The biological role of DHEA in human aging—if any—remains undefined.<sup>9</sup>

The search for eternal youth has been with us ever since people acquired the ability to think about the future and about mortality, possibly even before. Currently there is a strong effort by less than scientific spokespersons who promote one nostrum or another that will get us to live "120 years." Vitamins, herbs, and melatonin are just a few of the substances being hustled in books, magazines, talk shows, and in some instances, by members of our own profession.<sup>2</sup> One of the more widespread theories associated with the preceding treatments is that "free radicals cause aging." This theory states that aging occurs when cells become permanently damaged from their continual attack by free radicals (which are chemical particles). The theory further states that free radicals—molecules missing an electron—are trying, in a big way, to "steal" an electron from any other molecule (the guys in my old neighborhood would have been happy to oblige if they knew what an electron was). This theory postulates that these dangerous, life-destroying, disease-producing free radicals can be neutralized by antioxidant compounds, chemicals that give up one of their electrons thereby returning the free radicals to a normal state and stopping their wanton cellular terrorism. According to some zealots, certain herbs, vitamins, melatonin, etc., act as antioxidants. If good clinical studies could prove these allegations, the world as we know it would be turned upside down, and I would be playing high school football again (possibly first-string this time).

## What DHEA (Maybe) Does

Advocates of DHEA do not allege that this steroid precursor works via the theoretical free radical-antioxidant mechanism, but do say that clinical data link decreasing levels of DHEA and DHEA-S with age-related illnesses such as ischemic heart disease, changes in the amount and distribution of body fat, some forms of cancer, and the onset of Type II diabetes mellitus.<sup>11</sup> One problem with the idea that DHEA is *causally* linked to these disorders is the observation that DHEA and DHEA-S decrease during illness and during certain types of stress. Nevertheless, experimental data suggest that these hormones do effect some amazing beneficial changes, such as reducing the development of valvular stenosis in heterotopic heart transplants and, in some instances, appear to have an anticarcinogenic effect.<sup>11</sup> Orally administered DHEA reduces food intake and body weight in genetically obese rats, and DHEA-S acts directly on neural membranes to increase or antagonize the effects of glutamate or gamma-aminobutyric acid (as you recall, both of these are neurotransmitters).

DHEA is not as safe as proponents would have you believe. It is an androgen and androgenic effects have been reported in women: hair loss, acne, hirsutism, and deepening of the voice (the latter two can be irreversible, according the literature<sup>3,12</sup>). The conversion of large doses of DHEA to androgens can explain the masculinization of some women taking the drug. There is also evidence that DHEA may increase the risk of ovarian cancer: a study of 20,000 women found that the risk of ovarian cancer increased along with blood levels of DHEA and DHEA-S.<sup>13</sup> Androgens can stimulate the growth of prostatic cancer but it is not known whether DHEA can do this.

## Advice for DHEA-Eaters

The *Medical Letter* of October 11, 1996, says that there is no convincing evidence for a beneficial effect of DHEA on aging or any disease process, and that "patients would be well advised not to take it."<sup>12</sup> The November 6, 1996, issue of *JAMA*<sup>3</sup> suggests that no one take this drug without the knowledge of their physician. Furthermore, they say that DHEA should be taken only as part of a clinical trial so that its risks and benefits can be ascertained, and strongly suggest that it would be unwise for people younger than 30 years to indulge in DHEA because such self-medication might suppress the body's natural production of this hormone. Finally, they advise the intrepid taker of DHEA to record the batch number by saving the original bottle and to keep five pills, in case there is a need to pursue legal action secondary to an adverse reaction. It is abundantly clear, as suggested in the May 1995 *Lancet*, that the value of DHEA's for the aged must be proved in carefully controlled, prospective clinical trials. *Lancet* suggests that a lot of evidence is needed, including correctional evidence to compensate for problems of subject selection and controls, the effects caused by such



extraneous factors as illness and smoking, the necessity of giving the drug for adequate periods, and "the critical importance of using cross-disciplinary outcome measures." I do believe it is possible that DHEA can ameliorate some of the problems associated with aging, but we must await studies that take advantage of the scientific method to lead us to the truth.

## The Pathos of the Poet

Poor Robert Browning, such a tragic figure. When he was 34 years old he married the infirm poetess, Elizabeth Barrett (she of "How Do I Love You, Let Me Count the Ways" fame) who died 15 years later.<sup>14</sup> Browning never got a chance to fulfill his promise to "grow old along with me." The poem ends: "O times are in his hand who saith, 'A whole I planned, youth shows but half; trust God: see all, nor be afraid.'" He died at age 77, with good DHEA levels I'll wager.

The subject for this article was suggested by someone who may want to remain anonymous. As no one will probably read this, I want to thank Ann L. Hale, general counsel for the North Carolina Medical Society. (Oops, I have violated the crime of *omerta*; the code of silence. I will be sending my wife out of the house every morning to start my car). □

## References

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# CME Calendar

## March 12-15

### 21st Annual Internal Medicine Conference

Place: Friday Center, UNC-Chapel Hill  
Credit: 24 hours Category 1, AMA  
Fee: \$400  
Info: Dail White, UNC Office of CME and Alumni Affairs, UNC School of Medicine, 919/962-2118, fax: 919/962-1664

## March 12-16

### North Carolina Medical Society's Spring Conference: "Turning Adversity Into Advantage"

Place: Washington Duke Inn & Golf Club, Durham  
Info: Alan Skipper, NCMS, 800/722-1350 or 919/833-3836

## March 14-15

### Neurology for the Primary Care Provider

Place: Winston-Salem  
Credit: 11 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School of Medicine, 910/716-4450, or Physician Access Line (PAL) 800/277-7654

## March 20

### North Carolina Clinical Neuro-Ophthalmology Review

Place: UNC-Chapel Hill  
Info: Christine C. Cotton, UNC Department of Ophthalmology, CB# 7040, 617 Burnett-Womack Bldg., Chapel Hill 27599

## March 20

### Medical Office Management Seminar: Risk Management

Place: Medical Education Institute, Wake Medical Center  
Fee: \$159 for NCMS members; \$179 for nonmembers  
Info: Anna Busha, NCMS, P.O. Box 27167, Raleigh 27611, 800/722-1350, 919/833-3836, fax: 919/833-2023

## April 4-5

### Practical Pediatrics

Place: Winston-Salem  
Credit: 9 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School of Medicine, 910/716-4450, or Physician Access Line (PAL) 800/277-7654

**April 11-12**

**10th Annual Surgical Symposium and Hightower Lecture**

Place: Winston-Salem

Credit: 9 hours Category 1, AMA

Info: Office of Continuing Education, Bowman Gray School of Medicine, 910/716-4450, or Physician Access Line (PAL) 800/277-7654

**April 12**

**3rd Annual Hepatobiliary and Liver Transplant Update: Selection and Management of Liver Transplant Patients and Update on Hepatic Tumors**

Place: Washington Duke Inn & Golf Club, Durham

Credit: 7 hours Category 1, AMA

Fee: \$95 physicians, \$50 nonphysicians

Info: 800/222-9984 or 919/681-4044 (see ad, page 129)

**April 30-May 1**

**21st Annual Symposium of the UNC Lineberger Comprehensive Cancer Center: Innovative Approaches to Cancer Treatment**

Place: UNC Chapel Hill

Info: Sarah Rimmer, 919/966-2997

**April 30-May 4**

**Critical Care '97: 11th Annual Review and Update**

Place: Hyatt Regency, Washington, DC

Credit: 41.25 hours, Category 1, AMA, and AAFP

Fee: \$795 (by March 21) for physicians; \$575 for physicians-in-training and other allied professionals

Info: Center for Bio-Medical Communications, Inc., 201/385-8080, fax: 201/385-5650, e-mail: cbcbiomed@aol.com

**May 2**

**Building Partnerships for Healthier Hearts**

Place: Winston-Salem

Credit: 11 hours Category 1, AMA

Info: Office of Continuing Education, Bowman Gray School of Medicine, 910/716-4450, or Physician Access Line (PAL) 800/277-7654

**May 2-6**

**Council of Biology Editors Annual Meeting**

Place: Adam's Mark Hotel, Philadelphia

Info: CBE, 60 Revere Drive, Suite 500, Northbrook, IL 60062, 847/480-6349, fax: 847/480-9282

**May 14-16**

**Carolinas Medical Center Spring Symposium 1997**

Place: Charlotte Convention Center

Info: Mary Anne Cox, CHS/Charlotte AHEC Office of

CME, 1366 E. Morehead St., Charlotte 28204, 704/355-8631 or 800/562-7314, e-mail: symposium@carolinas.org

**June 6-9**

**Comprehensive Internal Medicine Board Review Course**

Place: Winston-Salem

Credit: 32 hours Category 1, AMA

Info: Office of Continuing Education, Bowman Gray School of Medicine, 910/716-4450, or Physician Access Line (PAL) 800/277-7654

**June 10-14**

**6th Annual Advanced Cardiovascular Interventions Symposium**

Place: Westin Resort, Hilton Head, SC

Credit: up to 18 hours Category 1, AMA

Fee: \$750

Info: Mary Anne Cox, CHS/Charlotte AHEC Office of CME, 1366 E. Morehead St., Charlotte 28204, 704/355-8631 or 800/562-7314

**July 4-6**

**North Carolina Medical Society's Sports Medicine Symposium**

Place: Sheraton Atlantic Beach Resort

Info: Dana Hammermeister, NCMS, 800/722-1350 or 919/833-3836

**November 12-15**

**American Medical Writers Association Annual Conference**

Place: Sheraton Hotel, Boston, MA

Info: AMWA, 9650 Rockville Pike, Bethesda, MD 20814-3998, 301/493-0003, fax: 301/493-6384, e-mail: amwa@amwa.org, Internet URL: <http://www.cma.ca/mwc/amwa-canada/amwa.htm>

**November 12-15**

**International Congress on Performance Measurement and Improvement in Health Care**

Place: Chicago, IL

Info: hosted by: Joint Commission on Accreditation of Healthcare Organizations and International Society for Quality in Health Care, Inc. For details—fax: 630/792-5858; or contact Internet URLs: <http://www.jcaho.org> <http://www.jacho.org/JCI.html> <http://hsfo.health.latrobe.edu.au/ISQua/Confs.html>

**November 13-16**

**North Carolina Medical Society's Annual Meeting**

Place: Pinehurst Resort & Country Club

Info: Alan Skipper, NCMS, 800/722-1350 or 919/833-3836



# Physicians in Retirement

## Opportunities for Continued Productivity and Enjoyment

Patrick D. Kenan, MD, Thaddeus B. Wester, MD, and Nell L. Agee

More and more doctors are retiring—some of them as part of the “graying of America,” some early for a variety of reasons. In 1995, according to the Sheps Center for Health Service Research, 884 physicians who maintained a license with the North Carolina Medical Board indicated they were retired. Despite retirement, many are blessed with good health and vigor and a continuing desire to serve the needs of humanity and their communities. Such motivation—plus the experience, wisdom, and management skills learned over 30 or 40 or 50 years of practice—position these retirees to make valuable contributions to a variety of productive endeavors.

The North Carolina Medical Society (NCMS) and the NCMS Foundation have established the Senior Physician Program as a component of the Kate B. Reynolds Community Practitioner Program directed by E. Harvey Estes, Jr., MD. Nell Agee directs the Senior Physician Program and reports to the Board of the NCMS Foundation; operational supervision is provided by Dr. Estes and Bob Seligson, NCMS executive vice president. The goal of the Senior Physician Program is to enlist the time and talents of retired or “winding-down” senior physicians, physician assistants, and volunteers in providing professional expertise to North Carolina communities that need their services. As Dr. J. Kempton Jones of Chapel Hill says, “It is a way for senior physicians to remain active in health care delivery with a minimum of hassle.” As Donna Anderson, president of National Retiree Volunteer Coalition puts it, “It is important to capture the imagination of retirees” because “retirees continue to be a powerful force in their communities. They find fulfillment in activity that adds a new sense of excitement to retirement. A retiree volunteer program provides opportunities to use the skills and expertise built over a lifetime and often to develop new interests and talents.”

Ms. Agee, Program director, joined the Foundation in

August 1996, and has since visited more than 75 “free” and state clinics, senior physicians, volunteers, community leaders, component societies of the NCMS, and several nonprofit agencies. Based on the information she gathered, a pilot program has begun in Durham, where despite its claim as the “City of Medicine,” there are both many unmet needs, and a large pool of resources. After the Durham program is successful, we intend to duplicate it across the state. Few senior physician programs exist in this country, so we hope to make North Carolina a leader in this concept. Beth Maxwell, director of the Volunteer Center of Greater Durham says, “Many times people don’t know what valuable contributions they can make. Everyone has something to offer. There are no interests and no skills that can’t be put to use. And volunteering is good for your health—it reduces stress and you live longer.”

In this paper we define some of the areas of medical need that retired physicians can serve. We also look at other opportunities and activities in which their skills and interests can be used.

### Background

William Osler said that *work* was “the master-word in medicine.” If one characteristic distinguishes physicians, it is their work ethic. They are used to hard work, to long hours, to sleep deprivation, to a disciplined lifestyle. They learn these traits early, and they remain firmly in place after retirement. Dr. Henry T. Perkins of Raleigh says, “You retire from active practice, but you don’t retire from medicine.” These qualities, so valuable to practitioners, should not be shelved or allowed to lie dormant at an arbitrary retirement age, particularly when good health remains. Failing to maintain an active lifestyle or

Dr. Kenan recently retired as Associate Professor, Division of Otolaryngology, Department of Surgery, Duke University Medical Center, and is a member of the *Journal's* Editorial Board. Dr. Wester is a retired pediatrician and former president of the NC Medical Society. Ms. Agee is Director, Senior Physician Program, NC Medical Society Foundation, 222 N. Person St., Raleigh 27611.

productive endeavors often leads to depression, alcoholism, and an array of affective and psychosomatic disorders.

"Better to wear out than to rust out" has the ring of truth. In reality, intellectual or physical stimulation are necessary elements to maintain health. As Helen Feathersen of the Retired Senior Volunteer Program in Durham points out, "Volunteers are healthier mentally and physically when involved in the community." We list here some activities retired physicians have found attractive.

#### ***Continue medical practice:***

- Provide medical services at "free" clinics.
- Provide locum tenens coverage. (Low-cost liability insurance is available. Resources include: Medical Mutual, 800/662-7917 and St. Paul Medical Services, 800/328-2189).
- Provide educational services to schools, senior citizens groups, organized youth groups, health departments, etc.
- Help active providers in underserved areas by providing quality control and risk prevention services, reporting only to the physician or office manager.
- Serve on hospital committees.
- Provide consultation and counseling services in local, state, and federal health care agencies and correctional institutions.
- Help drug companies coordinate drug sample distribution.
- Help pharmacists, dietitians, social workers, and discharge planning nurses coordinate discharge planning for patients.
- Perform peer chart review for quality control in hospitals.
- Supervise Saturday Rural Health Coalition Clinics, linking medical students with older physicians.
- Provide health services and/or education to Third World countries through the Peace Corps, World Health Organization, etc.
- Serve on local Task Forces for Healthy Carolinians.
- Mentor younger physicians.
- Provide management consultation to physicians and clinics.
- Organize local health fairs and screening clinics.

#### ***Undertake public service:***

- Serve on NCMS committees; serve as a member of House of Delegates.
- Be an "ambassador" and recruiter for organized medicine; raise money for its foundations.
- Serve as health affairs or management consultant with Executive Service Corps.
- Sit on nonprofit boards serving educational foundations, cultural agencies, health-related groups.
- Participate in a senior/retired physicians program.
- Serve on editorial staff or board of medical journals, newspapers, other publications.
- Run for elected office.

#### ***Enter private enterprise:***

- Serve on corporate boards.
- Provide management consultation on fee-for-service basis.
- Engage in development or other fundraising.

- Manage investments.
- Organize and conduct foreign travel "packages."

#### ***Volunteer:***

- Serve in a hospice.
- Work with local Red Cross chapter. Take blood! Give blood!
- Work with Habitat for Humanity.
- Drive for Meals on Wheels.
- Engage in Scouting and other youth activities.
- Participate in literacy programs.
- Work with environmental groups.
- Offer services to shelters for homeless, soup kitchens.

#### ***Take up or renew a hobby:***

- Spend time with grandchildren.
- Upgrade computer skills.
- Engage in creative writing, art, photography, music, travel, fishing, gardening, etc. (These may necessitate taking courses or classwork).

#### ***Enroll in continuing education:***

- Engage in learning for the sake of learning, a desirable goal unto itself.
- Explore opportunities to enroll in courses and classes (see above).

#### ***Enhance recreation, exercise, and fitness:***

Retirement and a disciplined lifestyle should provide ample opportunity for regular exercise. The essentials are aerobic (cardiovascular) exercises, stretching and flexibility programs, and weight training.

- Tennis and other racquet sports are excellent, if your joints can take it.
- Brisk walking is better than jogging because low impact causes less joint stress.
- Swimming and water aerobics are two extremely beneficial exercise methods.
- Boating, fishing, and water recreation serve physical, mental, and emotional needs. If you enjoy hunting, beware of hearing trauma!
- Even gardening and yard work are forms of exercise.

Given the blessing of reasonably good health, there is no reason why retirement cannot be productive and among the most enjoyable years of one's life. The North Carolina Medical Society Foundation shares these beliefs, and the Senior Physician Program can make the transition into retirement easier. Contact Ms. Agee at 800/722-1350 or 919/833-3836.

Marilyn McNeely, director of the Open Door Clinic in Raleigh, commented that "Good health care has many facets—thoroughness, accuracy, technical mastery, sound judgment, confidence, communication skills—that can't be learned overnight. Physicians learn from every patient they treat, and by the end of their active careers they have a perspective that is invaluable. What a waste, given the vast scope of patient need, to let these gifts sit idle, or to let these resources go untapped." □



# Fifty Years Ago in Medicine...

## Rules for "Visiting Men"—circa 1947

**Editor's note:** Recently, Dr. Albert Heyman, emeritus professor of neurology at Duke University Medical Center, dusted off these "Rules for Visiting Men," which were given to him in 1947 while he served as an attending physician at Emory Hospital in Atlanta. Attendings were referred to as "visiting men" in those days.

Dr. Heyman's chief, Dr. Paul Beeson, circulated the "Rules," which were written by Emory residents, to all attending physicians. We publish them here, with Dr. Beeson's permission, for historical perspective. And, we invite readers to comment on whether any of these admonitions still ring true in today's hospital environment.

March 26, 1947

*To All Members of the Department of Medicine:*

During the last few months, I have had to spend a good deal of time arranging visiting schedules at Grady, Lawson, and Emory Hospitals. In conversations with members of the house staffs in these hospitals, it has become obvious that there is a great difference in the popularity of various members of the visiting staff, from the standpoint of the house officers. Some men who are excellent physicians aren't very successful at ward rounds. In part this is because we don't sit down and think about the problem very often. It is important, however, because that two-hour round is our principal teaching exercise, both for students and house staff.

A few days ago, I asked several of the resident staff at Grady to get together and let me have some suggestions regarding the things that, from their standpoint, make for good ward rounds. They promptly returned the attached "Rules for Visiting Men," which I am passing on to all of you, without alteration. The wording is too strong; obviously the writing of this let out some pent-up emotion. I personally blushed violently several times when I read it. I think, however, there are some good points in it, and it doesn't hurt any of us to get a little criticism now and then. In passing it on to you, I want to emphasize that this is being done only as a means of provoking thought about our teaching methods, and to make teaching more enjoyable for everyone. I realize, as do the men who wrote this, that the time given to teaching represents a real gift from you, of valuable time and energy. I'll be glad to have any comments that you care to make on the problem.

Paul B. Beeson, MD

Chair, Department of Medicine  
Emory Medical School, Atlanta, GA

### "Rules for Visiting Men"

1. Be prompt. Several mature, industrious, and socially valuable persons have set aside the hours of 10 till noon to discuss their cases with you, and their time is practically wasted until you get there. Their morale will be lowered, their attention dissipated by your tardiness and consequent precipitousness when you do appear. And stop at close to 12 o'clock. If you keep the group tied up long after that they can't get their lunches before the 12:30 conference.
2. Students and house officers both consciously and unconsciously model their conduct toward a patient after your own. Accordingly, it is the part of good teaching to handle the patients you see on the wards in the same fashion you handle your private patients. A diagnosis alone is not sufficient. One of the most valuable things you can do is contribute from your own experience various techniques and refinements in the management of these patients.
3. Become an active member of the Society for the Prevention of Traumatizing Words in Front of Patients. Even on Wards I and II such words as "syphilis" and "gonorrhea," spoken stentoriously, may wreak irreparable harm; any

patient knows what "death" means, may be well aware of such words as "fatal," and certainly is aware of the attitude of his doctors as expressed in their actions. On the contrary, you ought to show the group how to talk in front of a patient, how to explain his disease to him, how to prepare him psychologically for an operation.

4. Be prepared to demand careful work, and be concerned and obviously irritated when it is not forthcoming. House men and students distrust meekly acquiescent visiting men.
5. When a case is being presented do not do such things as proceed with auscultation, which obviously diverts your attention from what is being said. The student realizes that even a visiting man cannot listen to two things at once; such behavior is bound to make him feel that your evaluation of his presentation is slight. He will then be inclined to allow the presentation fit your evaluation of it.
6. Your primary function is to give knowledge and not to receive it. Everyone realizes that you are not omniscient, but something more than an expression of amazement is called for. If you have nothing to offer at the first time you see a patient, be sure to have something the next time. Students appreciate bibliographic hints.
7. Examine each new patient, checking positive findings and whatever may be called for. It is not too late in the career of a student or house officer for him to learn more physical diagnosis. But don't do a long, detailed physical examination on every patient. You ought to know *when* that diastolic murmur should be there.
8. No case is "just another cerebral vascular accident" or "just another pneumonia." It is your duty to find something interesting to talk about in every case—this can be done with a bit of inventive effort on your part. Otherwise the student or intern who worked up the case wonders if all that time was worth spending.
9. Dictate your notes—do not write them in yourself. If you dictate, everyone can hear what you are saying. If you write the note yourself, the time of the men standing around is wasted.
10. See each patient on the ward every day, even if for a moment. It is only in this way that you can keep up with an actively moving ward.
11. Certain visiting men are prone to seize on the time for rounds as an occasion to deliver some well-told account of a previous exploit, association with a famous personality, etc. One visiting man (not in Atlanta) detracted greatly from his already very questionable worth by taking an hour of a group's time every month to recount in detail his

service under Sippy. This soliloquy was well known to all house men and students as being stupefying as well as stupid. Prevent such things as much as possible by an examination of your own repertoire.

12. Stick your neck out occasionally. You will be much more respected if you have opinions of your own rather than if you slavishly duplicate what you have been told by the case-presenter. Everyone knows that no matter how expert you are, you will occasionally err; and no one minds this. Of course, if you are *always* wrong you shouldn't be making rounds!
13. Are your rounds fun, for yourself as well as the others? A large store of jokes is not necessary for this. Everyone will have fun if they are *stimulated* by your presence; promptness, knowledge of and a vigorous interest in your subject matter, plus an imaginative treatment of it—these are all required.
14. Include all those present when asking questions or requiring opinions—there is no reason why house officers as well as students should not participate. Everybody likes a "spelling bee" type of exercise.
15. Don't let rounds drag. If the assistant resident is not present, regard one of the interns as being in charge and be prepared to be irritated if he allows the group to dawdle, while he slowly makes up his mind what to do next.
16. When you have suggested that extra library or other research be done, be certain that you ask about what has been done when the required time has elapsed. Failure to do this is as impolite as missing an appointment.
17. Try to make yourself a part of the team. Be interested in the fate of patients discharged, transferred, etc. Be available for special consultation. Make an effort to appear at conferences, pathologic exercises, etc., at which cases from your ward are discussed. Share with the house officers your part of the burden of the management of their patients. □

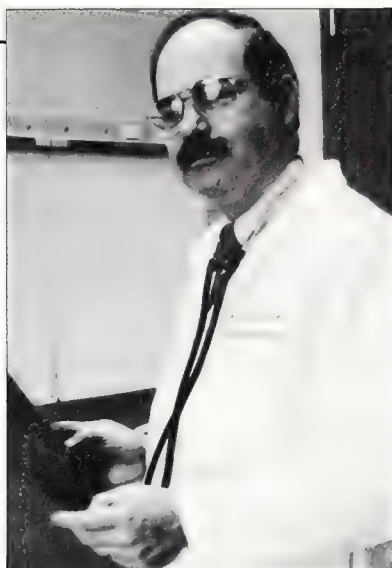
*Mark your calendars now:*

**July 4-6**

**NCMS Sports Medicine Symposium:  
"Evaluation and Treatment  
of the Injured Athlete"**

Place: Sheraton Atlantic Beach Resort  
Info: Dana Hammermeister, NCMS,  
800/722-1350 or 919/833-3836





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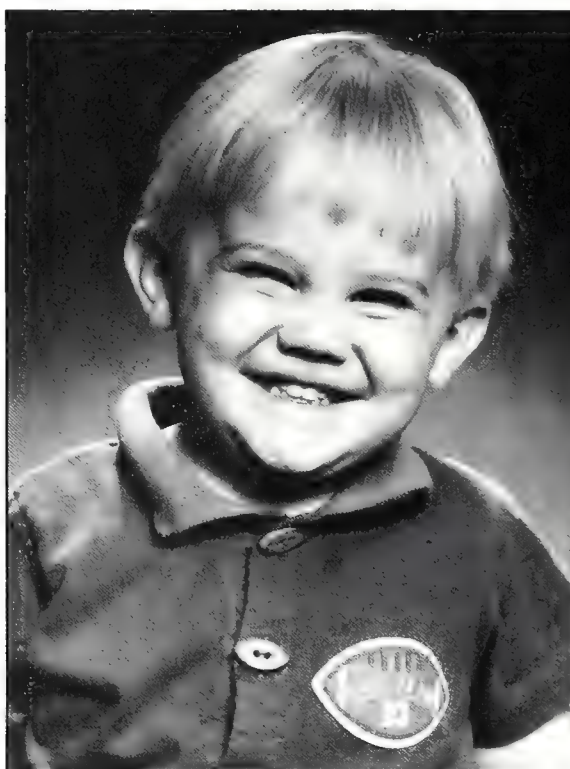
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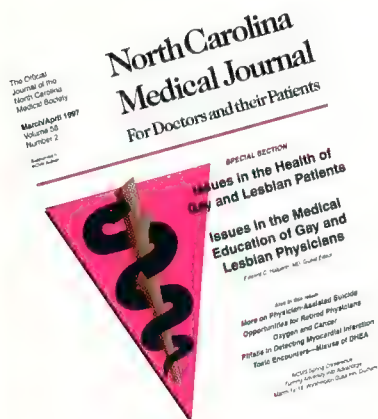
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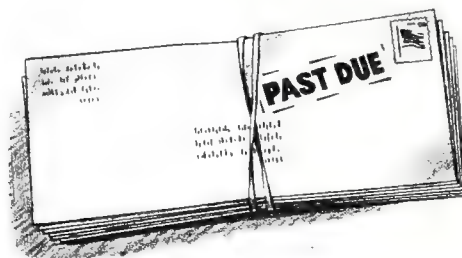
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## Aphorisms of the Month

Daniel J. Sexton, MD, Section Editor

### "Random Sayings and Proverbs\*\*"

Education is not the filling of a pail, but the lighting of a fire.  
—William Butler Keats

Write kindness in marble and write injuries in the dust.  
—Persian proverb

I have lost friends, some by death, others through sheer inability to cross the street.  
—Virginia Woolf

Critics! ...those cutthroat bandits in the path fame.  
—Robert Burns

The future is no more uncertain than the present.  
—Walt Whitman

Prosperity discovers vice, adversity discovers virtue.  
—Francis Bacon

Vanity plays lurid tricks with our memory.  
—T.S. Eliot

When it comes to money, everybody is of the same religion.  
—Voltaire

Guilt is the gift that keeps on giving.  
—Jewish proverb

Silence is one of the hardest arguments to refute.  
—Josh Billings

\*Supplied by Sheri Keitz, MD

Fax aphorisms to Dr. Sexton at 919/684-8358,  
or send them via e-mail: sexto002@mc.duke.edu

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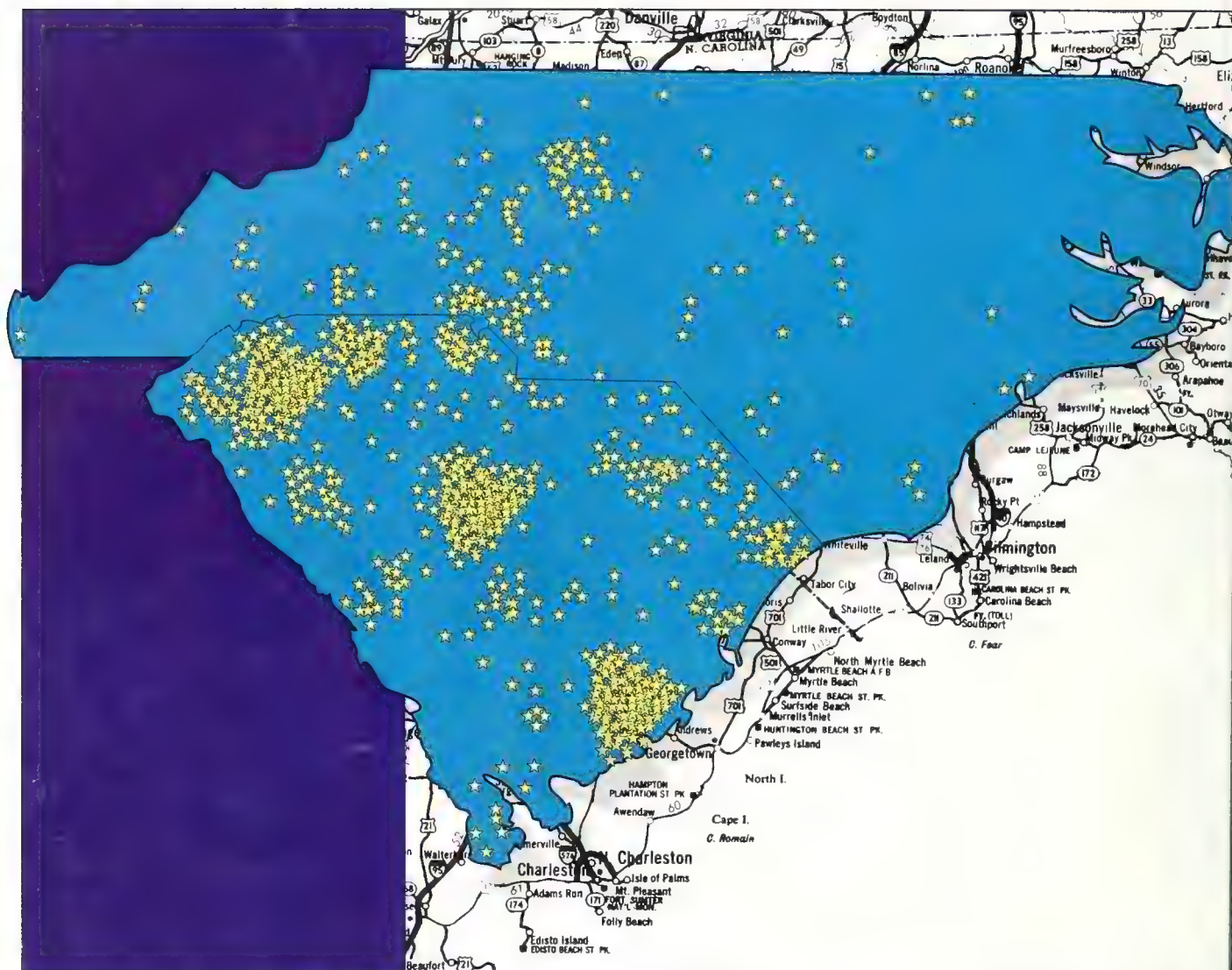
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Official  
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May/June 1997

Volume 58  
Number 3

Supplement to  
S Bulletin

# North Carolina Medical Journal

## For Doctors and their Patients



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*The Spectrum of Disease:*  
**The Prevalence of Cancer in NC**

**Should We Test for Inherited  
Susceptibility to Breast Cancer?**

*The Anatomy of Managed Care:*  
**Can We Reach Middle Ground  
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*History of Medicine:*  
**Lessons from Ancient Rome  
For Today's Physicians**

*Public Health:*  
**Nutrition and Parkinson's Disease**

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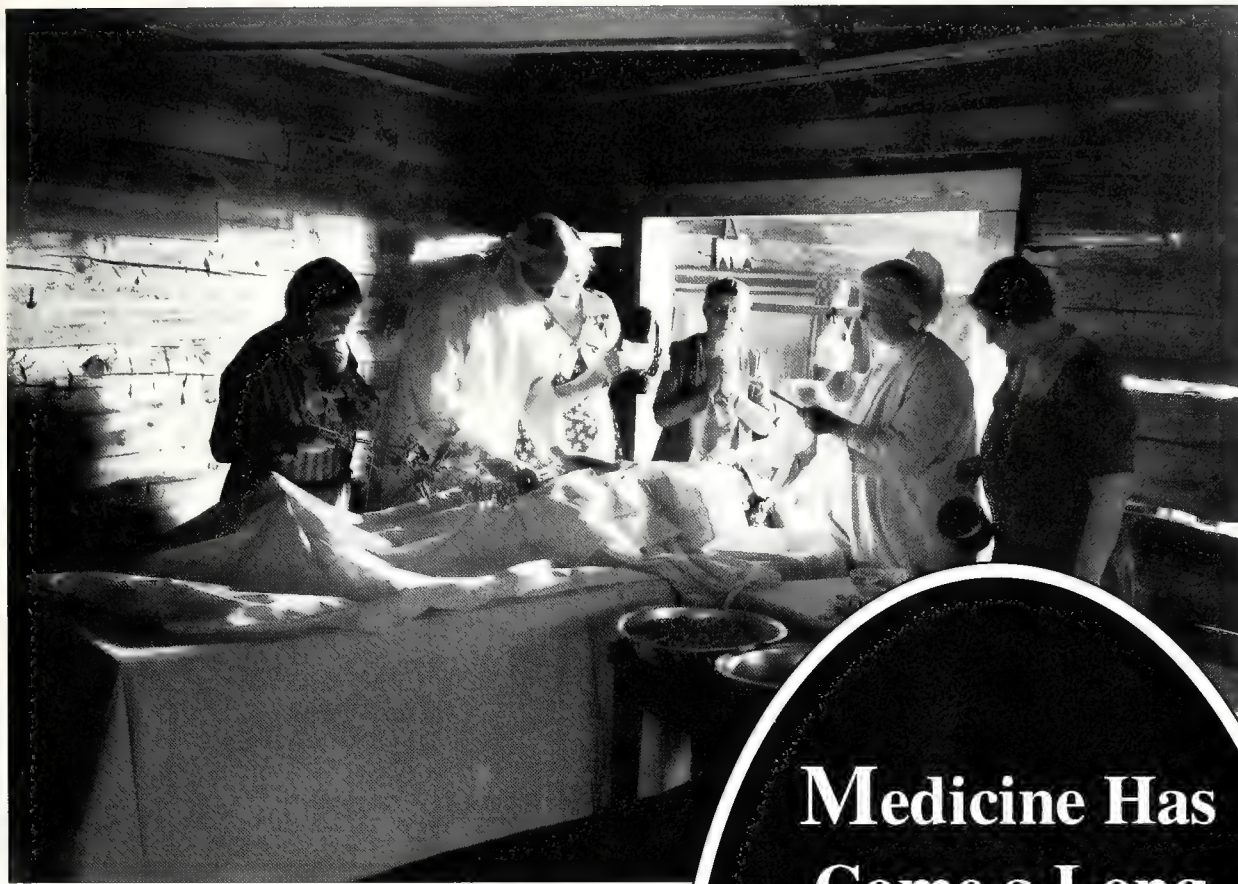
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**For Doctors and their Patients**

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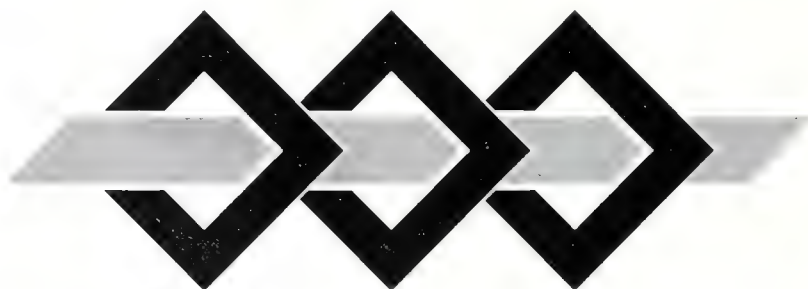
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# North Carolina Medical Journal

FOR DOCTORS AND THEIR PATIENTS

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May/June 1997, Volume 58, Number 3

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# Letters to the Editor



## Readers React to March/April Issue

### To the Editor:

Mouth agape, pupils dilated and face flushed, I pulled the March/April *North Carolina Medical Journal* from my stack of mail. I was surprised and elated to see the cover and its topics. As a physician assistant who serves a large lesbian, bisexual, and gay population as well as an HIV population, I was pleased to see the *NCMJ* devote an issue to the health care of this medically underserved population.

Thank you for reminding so many that lesbian, bisexual, and gay medicine is not only about HIV and AIDS. Thank you for the inclusive language section and the resource list. You have done the medical community a great service by broaching this subject and I hope the homophobic hate mail is minimal.

J. Wesley Thompson, MHS, PA-C  
Family Practice, Kaiser Permanente  
Wes.Thompson@kp.org via Internet

### To the Editor:

Dr. Ed Halperin should be congratulated on the March/April *Journal*. It is a landmark issue once again for the premier state medical journal in the country. I plan to use some of the articles in my future teaching with medical students about issues of gender identity and preference and health care needs.

Dr. Halperin's leadership and those of the other authors is inspiring.

Adam O. Goldstein, MD  
Clinical Assistant Professor  
UNC Department of Family Medicine  
aog@med.unc.edu via Internet

### To the Editor:

I am the clinic nurse for a busy internist in a large, multispecialty group practice. One of my "unspecified duties" is to go through his mail, which includes more than 30 medical publications per week, most of which end up in the trash can. This particular issue of the *Journal* was brought to my attention by a friend/coworker. After reading Dr. Halperin's editorial, I knew that this publication would not suffer the same fate.

I applaud the *Journal's* efforts to bring the health care issues of the gay, lesbian, and bisexual communities to light. Our only hope of erasing the harmful attitudes and lack of compassion for this population is through education and increased awareness of their unique health care concerns. As a

nurse, I was particularly interested in the segment on inclusive language for patient interviews. Very often, I am the first contact a patient will have with the physician. If I can create an environment of trust and acceptance, the patient will feel more at ease, be more apt to be honest with the physician about his or her particular needs, and thereby get the best treatment possible. Shouldn't this be our primary focus?

I hope more physicians come to realize that gay, lesbian, and bisexual patients deserve the same concern, kindness, and respect afforded other patients. Judgment has no place in the medical community.

Angela Childress, LPN  
Internal Medicine-Southeast Division  
Angela.Childress@kp.org via Internet

### To the Editor:

Congratulations on a sensitive and appropriate approach to yet another "difficult issue." The articles about the health care needs of gay and lesbian patients and their physicians were excellent. The articles provide needed education for us all about these patients' needs, as well as how to identify such concerns.

Many may disagree with the lifestyle, but none should forget our duty to provide appropriate health care for all patients—and their doctors. To date, we have not done an appropriate job of education in the health care and care of these individuals. We need to do it. Thank you for the help.

Charles B. Hammond, MD, Professor and Chair  
Department of Obstetrics and Gynecology  
Duke University Medical Center, Durham  
hammo005@mc.duke.edu via Internet

### To the Editor:

I congratulate the *Journal* on its excellent feature on gay and lesbian health. It serves as a superb review for physicians to better recognize and understand the unique medical conditions that challenge gay and lesbian patients. Too often, our patients present with symptoms that are not easily explained. Gaining an understanding of what's going on in their lives, and who and what they are dealing with, provides valuable insight into proper diagnosis and development of better treatment programs. Gay, lesbian, and bisexual patients rarely mention their sexual orientation or discuss how it affects their health.

A long time ago I learned that if we physicians don't ask, they will not share details of their private lives. A sexual history

is very important, today more than ever. Periodically updating a patient's sexual history can often provide surprising and new insights into patients with whom we have been dealing with for many years.

Thank you for continuing the *Journal's* well done special series presentations.

Don C. Chaplin, MD, FACP  
Kernodle Clinic, 1234 Huffman Mill Road  
Burlington, NC 27215-8777

#### **To the Editor:**

I read the special section in the March/April issue from beginning to end. The *Journal's* editors demonstrate great courage in tackling an important subject that is often overlooked. The cover, equally handsome and representative of the topic, was both provocative and welcoming. I especially appreciated Dr. Halperin's introductory remarks that explain the need for the special issue.

The article, "Primary Medical Care for the Gay or Lesbian Patient" (NC Med J 1997;58:92-8), deserves a wider readership and will be useful to me in a Social Issues in Medicine course that I direct.

Also, I was intrigued by the Physicians' Roundtable discussion, specifically by Dr. Halperin's *chutzpah* in posing challenging questions that stimulated thoughtful responses from the deans.

Mollie M. Wallick, PhD, Professor of Psychiatry  
Louisiana State University  
School of Medicine-New Orleans  
1542 Tulane Ave.  
New Orleans, LA 70112-2822

**Editor's note:** Dr. Wallick wrote "Homophobia and Heterosexism: Out of the Medical School Closet" (NC Med J 1997;58:123).

### **Wanted: Retired Physicians to Serve as Medical Examiners**

#### **To the Editor:**

Apropos of the recent *Journal* article "Physicians in Retirement" (NC Med J 1997;58:148-9), I would like to remind readers of another activity that has proved productive and enjoyable to many of our retired colleagues, namely service as a county medical examiner.

Nearly 600 physicians currently serve as medical examiners. Most practice full time, others are retired or semiretired. Activity as a county medical examiner is one way physicians can continue to exercise their medical skills while providing a valuable community service. Some of our physicians have even allowed that serving as county medical examiner was one of the more interesting and exciting parts of a long medical career.

Any physician interested may contact our office for details.

John D. Butts, MD, Chief Medical Examiner  
Office of the Chief Medical Examiner  
Chapel Hill, NC 27599-7580  
800/672-7024, jbutts@ocme.med.unc

### **Costs and Consequences of ESRD in NC**

#### **To the Editor:**

Diabetes is a strong risk factor for end-stage renal disease (ESRD), as Dr. Fred Jones states in, "The Graying of Dialysis in America" (NC Med J 1996;57:359-62). All health care providers should be concerned with the public health impact of diabetes on kidney disease: Approximately 300,000 North Carolina adults have been diagnosed with diabetes; the same number of people may have the disease and not yet know it.

Southeastern Kidney Council data indicate that in 1994, approximately 40% of the 6,301 persons in the state with ESRD had diabetes. The NC Inpatient Hospital Database indicates that in 1994, North Carolina hospitals spent more than \$28.3 million to treat persons with diabetes for renal dialysis or kidney transplantation, a total that included 17,928 hospital days and 2,163 hospitalizations.

Fortunately, there is some indication that control of blood glucose may reduce or delay diabetic nephropathy. In the recent Diabetes Control and Complication Trial,<sup>1</sup> intensive management of insulin-dependent diabetes in a young cohort resulted in a 50% reduction in the risk of kidney disease compared to conventional therapy. Tight control of blood glucose would result in, among other health benefits, 691,000 years of life free from ESRD.<sup>2</sup> Currently under investigation is the benefit of intensive management on the onset of nephropathy for persons with noninsulin dependent diabetes mellitus, which accounts for 90% of all cases of diabetes. Results are expected to be similar.

The NC Diabetes Advisory Council and the Diabetes Control Program presently serve citizens by informing and advocating at all levels to reduce the burden of diabetes in this state. Given the impact of diabetes on ESRD, our efforts to help citizens, legislators, and health care providers establish diabetes as a public health threat may help provide some relief for the costs and consequences of ESRD in North Carolina.

Marilyn Norman, RN, MPH, Director,  
NC Diabetes Control Program

Hugh Young, Chair, NC Diabetes Advisory Council

Ronny A. Bell, PhD, Diabetes Epidemiologist,  
NC Diabetes Control Program

NC Dept. of Health, Environment & Natural Resources  
P.O. Box 29605  
Raleigh, NC 27626-0605

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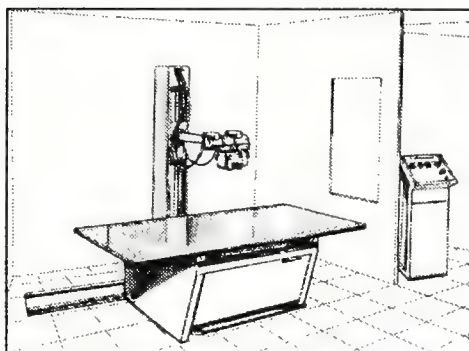
- 1 The Diabetes Control and Complications Trials Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications of insulin-dependent diabetes mellitus. *N Engl J Med* 1993;329:977-86.
- 2 The Diabetes Control and Complications Trials Research Group. Lifetime benefits and costs of intensive therapy as practiced in the Diabetes Control and Complications Trial. *JAMA* 1996;276:1409-15.

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## Medical School's Role in Roundtable Discussion *To the Editor:*

I feel a bit broadsided by the Deputy Editor's note accompanying "Gays, Lesbians, HIV Infection, and Admission to Medical School" (NC Med J 1997;58:126). When I received the questionnaire, I remember thinking that my answers were likely to be brief and predictable (most people know that Equal Employment Opportunity policies and the Americans With Disabilities Act prevent discrimination against applicants based on sexual preferences or HIV-positive status). As a *Journal* contributor and reviewer, I wanted to respond and called the Editor to clarify the scope of the questionnaire. He suggested that I wait to respond until he or Dr. Halperin got back in touch with me.

Since I did not hear from the editors, the publication of responses from only two of the state's four medical schools was a surprise. ECU was excluded from that article—despite my effort to respond. I also feel Dr. Halperin's comment regarding one dean's discouragement of the article to avoid controversy is inflammatory. Dr. Halperin avoids "naming names" as to who that person is, but I suspect that most readers will assume it is the admissions dean from one of the two absent schools.

I find it hard to believe that any of the deans would try to deter Dr. Halperin from this project. The only comment I made to Dr. Neelon that could possibly be considered cautionary was that any response other than "that would not affect the decision" would be inappropriate and illegal. I certainly did not mean for this to be construed as active discouragement of the article.

I think the article's inclusion of three similar answers to each of the three questions works well. It might not have benefited from any variations on the common theme. I do, however, regret the impression that ECU's exclusion is bound to give many readers, particularly those who may not be aware of our history of admitting qualified applicants with disadvantaged backgrounds, profound physical disabilities, and other nontraditional characteristics.

James G. Peden, Jr., MD, Assistant Dean for Admission  
Associate Professor of Internal Medicine and Psychiatry  
ECU School of Medicine, Greenville, NC 27858-4354

## *The Deputy Editor responds:*

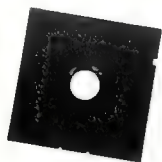
I invited members of the admissions committees of North Carolina's four medical schools to participate in the Roundtable for our special issue concerning the medical education of gay and lesbian physicians. Three physicians responded with written material: two from Duke and one from UNC-Chapel Hill. Several physicians expressed an interest in participating in the Roundtable—but we obviously could only publish what we received, in writing, prior to going to press. We always want to encourage communication, so we're sorry to have misunderstood Dr. Peden's intentions of responding.

No one from the "two absent schools" discouraged the *Journal* from publishing the article.

Edward C. Halperin, MD, Professor and Chair  
Department of Radiation Oncology  
Duke University Medical Center, Durham, NC 27710

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# The Prevalence of Cancer in North Carolina

David M. Grogan, MBA, Carrie N. Klabunde, PhD, Peggy Wittie, MAG, and Marion S. White, MSPH

Today, cancer is the second most common cause of death among North Carolinians; by the year 2000 it is expected to be the leading cause.<sup>1</sup> Each year, more than 27,000 North Carolina residents are diagnosed with cancer, and nearly 14,000 die from it. These data, addressing cancer and its consequences, are available because of statewide databases such as the North Carolina Central Cancer Registry, authorized by the North Carolina General Assembly in 1988. By law, all physicians practicing medicine in North Carolina must report newly diagnosed cancer cases to the Central Cancer Registry.<sup>2,3</sup>

Fifty years ago, the diagnosis of cancer was a virtual death sentence. At that time only 20% of patients lived five years after diagnosis; today, however, close to 50% of cancer patients survive five years or longer.<sup>4</sup> In order to meet the needs of present-day cancer patients (and survivors), we need to estimate accurately the numbers of cancer patients living with the disease, who need ongoing monitoring, follow-up, and support services. The Central Cancer Registry, in many ways a highly valuable resource, at present only identifies cancer *incidence* (the number of newly diagnosed cases). It does not provide data on cancer *prevalence* (the number of individuals who are alive with the disease).

In this paper we describe a project undertaken by the Care Subcommittee of the North Carolina Advisory Committee on Cancer Coordination and Control to estimate the prevalence of cancer in the state. The Advisory Committee was established by the General Assembly in 1993 to address the increasing burden of cancer in North Carolina and to help coordinate cancer control activities in the state. The Care Subcommittee (one of four subcommittees) evaluates geographic and financial access of North Carolina cancer patients to appropriate treatment and services, including pain control. In addition, the Subcommittee assesses the awareness of the public and health care providers

regarding cancer patient needs, and the availability of support services such as housing, transportation-to-care, and counseling.<sup>1</sup>

Because of the need to know the approximate numbers and geographic locations of cancer patients (in order to evaluate access to and awareness and availability of facilities, programs, and services), we have attempted to determine cancer prevalence in the state. We particularly emphasized the prevalence of four common cancers: breast, colon and rectum, lung, and prostate. As in other efforts to determine cancer prevalence,<sup>5</sup> we did not differentiate individuals who had been "cured" from those who were still living with cancer.

## Materials and Methods

**Definitions.** *Prevalence* refers to the number of individuals with a particular condition or disease who are alive at a given point in time.<sup>6</sup> It is distinguished from *incidence*, which refers to the number of new cases that appear during a given interval. We defined prevalence as the number of individuals in North Carolina who were diagnosed with cancer during the five-year period 1990-1994 and who were alive at the end of this interval. We chose a five-year period because our intent was to focus on persons with cancer who would be actively seeking treatment, follow-up, or supportive care for their disease.

**Data sources.** The Central Cancer Registry provided incidence data for 1990 and 1991 (nonmelanoma skin cancers are not reported to the Registry and are therefore excluded from analysis). We added information about cancer type (site of origin) and the geographic location of newly reported cases according to Area Health Education Center (AHEC) region within the

Mr. Grogan is a Health Care Analyst, Vantage PatientCare Information Services, Winston-Salem; Dr. Klabunde is a Cancer Prevention Fellow with the National Cancer Institute, Division of Cancer Prevention and Control, Bethesda, MD; Ms. Wittie is a Doctoral Candidate, Department of Geography, UNC-Chapel Hill; and Ms. White is Executive Director, North Carolina Advisory Committee on Cancer Coordination and Control. Also on the Committee are Mr. Grogan and Ms. Wittie, as consultants, and Dr. Klabunde, as staff assistant.

state. Type of cancer was determined by the ICD-9-CM diagnosis code for the primary disease site as follows: Breast (ICD-9-CM 174: Malignant Neoplasm of the Female Breast); Colon and rectum (ICD-9-CM 153.0 - 154.8: Malignant Neoplasm of the Colon and Rectum); Lung (ICD-9-CM 162.2 - 162.9: Malignant Neoplasms of the Bronchus and Lung); Prostate (ICD-9-CM 185: Malignant Neoplasm of the Prostate). Malignant neoplasms that did not correspond to one of the above ICD-9-CM codes were grouped together as "all other cancers." This information allowed us to develop county-specific tables of cancer incidence for 1990 and 1991. We used Central Cancer Registry estimates of the incidence of each cancer in each county for 1993 and 1994.<sup>2,7</sup> We estimated the incidence of each cancer for 1992 as the midpoint between the determined 1991 incidence and the estimated 1993 incidence. Finally, we used relative survival rates from the National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) program to estimate the percentage of patients who survived and the percentage who died during each of the five years under consideration.<sup>8</sup>

**Calculation of prevalence.** We estimated cancer prevalence (P) as the product of the annual incidence of cancer (I) times the estimated percentage of patients who survive (S) each year, summed over the years (Y) 1990 through 1994:

$$P = \sum (I_y \times S_y), \quad Y = 1990-1994$$

After aggregating data by patient gender and AHEC region for each year, we used Microsoft Excel software to calculate the prevalence of each type of cancer by multiplying incidence data for each year by the corresponding SEER period-specific relative survival rate. Finally, we computed estimated cancer mortality over the five-year interval by subtracting cancer prevalence from incidence.

Results

Estimates of the incidence, prevalence, and mortality for each of the four common cancers and all other cancers are summarized for the total population (Table 1), for women only (Table 2), and for men only (Table 3).

Our study estimates that 133,480 new cases of cancer were diagnosed in North Carolina during the interval 1990-1994, that 87,257 or 65% of these patients survived through the interval, and that 46,222 or 35% died (Table 1).

Breast, colon and rectum, lung, and prostate cancer together represented 78,416 (59%) of the incident and 52,725 (60%) of the prevalent cancer cases. These four major cancers accounted for nearly 56% (25,690 cases) of all deaths from cancer in the state. Lung cancer alone was responsible for 35% of all cancer mortality. Breast and prostate cancer together made up nearly 33% of incident and over 40% percent of prevalent cancer cases.

These incidence, prevalence, and mortality figures provide an important profile of the cancer burden in North Carolina. We now examine each of the major cancers in greater detail.

**Breast cancer.** Breast cancer accounted for a substantial proportion (34% or 22,141) of the 65,019 incident cancers diagnosed in

Table 1. Cancer incidence and mortality (1990-1994) and cancer prevalence (1995), North Carolina: all patients

Site	Incidence	Prevalence	Mortality
Breast	22,141 (16.6%)	19,809 (22.7%)	2,332 (5.0%)
Colon	16,622 (12.5%)	11,480 (13.2%)	5,141 (11.1%)
Lung	20,789 (15.6%)	4,570 (5.2%)	16,219 (35.1%)
Prostate	18,864 (14.1%)	16,866 (19.3%)	1,998 (4.3%)
All Others	55,064 (41.3%)	34,532 (39.6%)	20,532 (44.4%)
Total	133,480 (100%)	87,257 (100%)	46,222 (100%)

Table 2. Cancer incidence and mortality (1990-1994) and cancer prevalence (1995), North Carolina: women only

Site	Incidence	Prevalence	Mortality
Breast	22,141 (34.1%)	19,809 (43.4%)	2,332 (12.1%)
Colon	8,338 (12.8%)	5,675 (12.4%)	2,663 (13.8%)
Lung	6,666 (10.3%)	1,619 (3.5%)	5,047 (26.1%)
Prostate	NA	NA	NA
All Others	27,874 (42.9%)	18,591 (40.7%)	9,283 (48.0%)
Total	65,019 (100%)	45,694 (100%)	19,325 (100%)

Table 3. Cancer incidence and mortality (1990-1994) and cancer prevalence (1995) North Carolina: men only

Site	Incidence	Prevalence	Mortality
Breast	NA	NA	NA
Colon	8,284 (12.1%)	5,800 (14.0%)	2,484 (9.2%)
Lung	14,123 (20.6%)	2,910 (7.0%)	11,213 (41.7%)
Prostate	18,864 (27.6%)	16,866 (40.6%)	1,998 (7.4%)
All Others	27,189 (39.7%)	15,987 (38.5%)	11,202 (41.6%)
Total	68,460 (100%)	41,563 (100%)	26,897 (100%)



North Carolina women between 1990 and 1994 (Table 2). Prevalence estimates indicate that a high proportion (90%) of those diagnosed with breast cancer survived through the interval. That breast cancer was responsible for only 12% (2,332 cases) of deaths due to cancer in women during this period is further evidence of the relatively long survival of patients with this disease. The fact that breast cancer prevalence (43%) exceeded its incidence (34%) between 1990 and 1994, and the relatively low mortality (12%) emphasize the need for ongoing follow-up and support services for women with breast cancer in North Carolina.

**Colon and rectum cancer.** Cancer of the colon and rectum accounted for 13% (16,622) of all incident cancer cases in North Carolina between 1990 and 1994 (Table 1). Tables 2 and 3 show that incidence of this disease was about the same in women (13% or 8,338 cases) and men (12% or 8,284 cases). We estimate the prevalence of colorectal cancer at nearly 11,500 cases (Table 1). Tables 2 and 3 show that the distribution by gender was nearly equal (5,675 cases versus 5,800 cases). Colorectal cancer was responsible for 11% of cancer deaths between 1990 and 1994 (Table 1), a proportion double that of breast and prostate cancers, but dwarfed by lung cancer (see below). There were slight gender differences in mortality from colorectal cancer (14% for women versus 9% for men). In contrast to breast cancer, the prevalence of colorectal cancer (13%) was about equal to its incidence (13%).

**Lung cancer.** As Tables 1-3 illustrate, lung cancer was responsible for 20,789 (16%) of incident cancer cases between 1990 and 1994. There were 6,666 incident cases (10% of the total) in women and 14,123 (21% of the total) in men. The estimated prevalence of lung cancer was considerably lower than its incidence: about 5% of all cancers (4% in women and 7% in men). Comparison of incident and prevalent cases demonstrates the clear gender differences in the lung cancer burden, as well as the poor survival prospects of patients with this disease. This latter conclusion is borne out by the high mortality from lung cancer. It accounted for an estimated 35% (16,219) of all cancer deaths in the state between 1990 and 1994—26% (5,047) of the cancer deaths in women and 42% (11,213) of the cancer deaths in men.

Lung cancer is the second most commonly occurring cancer in North Carolina, but it has low prevalence (5%) and high mortality (35%) compared to the other major cancers. The

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“Our study represents the first formal attempt to estimate the prevalence in North Carolina of four major types of cancer.”

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figures are stark: of the nearly 21,000 patients diagnosed with lung cancer between 1990-1994, fewer than 5,000 survived into early 1995.

**Prostate cancer.** Prostate cancer accounted for 28% (18,864) of incident cancer cases among men in North Carolina between 1990 and 1994 (Table 3). Prevalence estimates indicate that a high proportion (89% or 16,866 cases) of men who were diagnosed with prostate cancer survived into early 1995. As is the case with breast cancer in women, most men are alive several years after diagnosis of prostate cancer. Table 1 shows that prostate cancer accounted for 19% of all prevalent cancer cases in the state, second only to breast cancer (23%). Furthermore, Table 3 shows that mortality from prostate cancer (1,998, or 7% of cancer deaths) was lower than that of lung and colorectal cancer in men.

Prostate cancer had a high incidence (28%), high prevalence (41%), and low mortality (4%) among men diagnosed with cancer in North Carolina between 1990 and 1994. This implies that allocation of resources for monitoring, follow-up, and supportive care are likely to have a significant impact on the control of this disease.

**The geography of cancer.** The data generated by our study can be used to assess the cancer burden in various geographic regions within the state. Figure 1, next page, shows cancer prevalence in each AHEC region of North Carolina. It is also possible to map the location of cancer treatment centers versus the county of residence of cancer patients in order to assess geographic access to cancer care (Figure 2, next page).

## Discussion

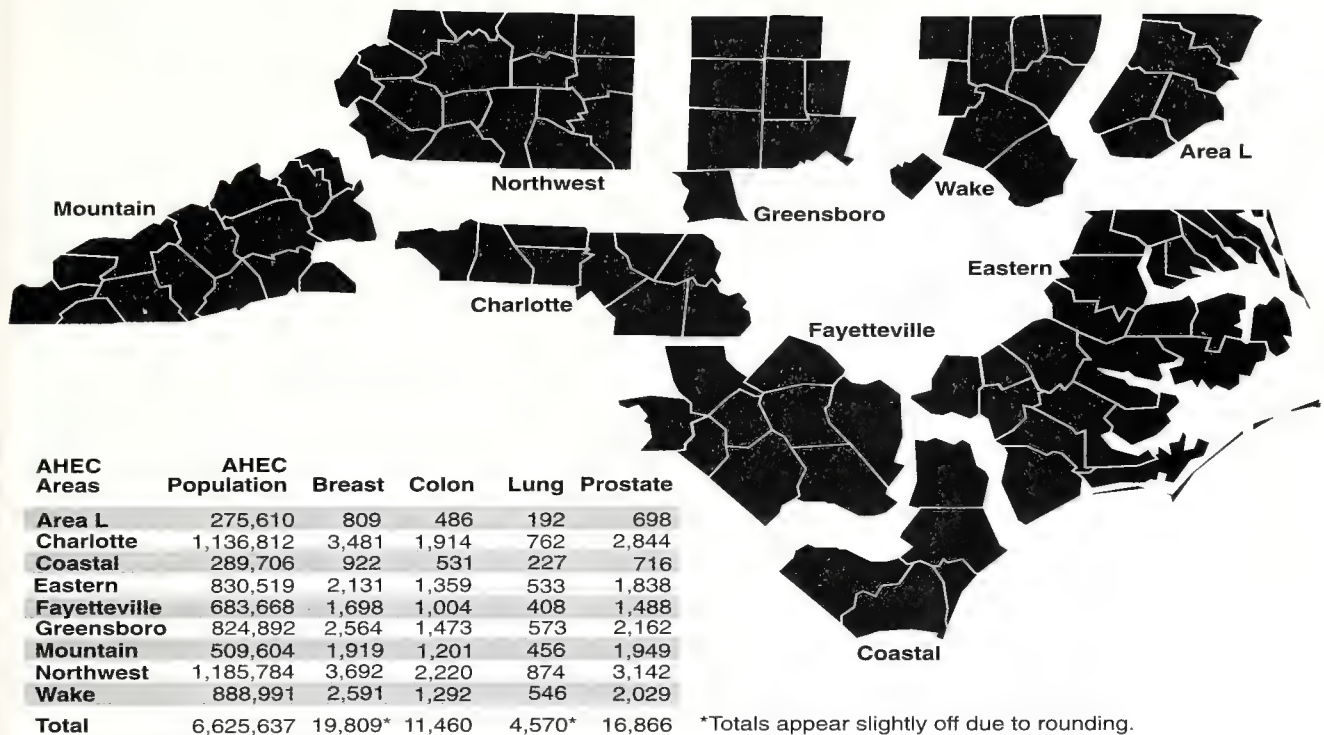
Because the primary focus of North Carolina's statewide cancer registry is the detection of new or incident cancer cases, the prevalence of cancer in the state can only be estimated. Our study represents the first formal attempt to estimate the prevalence in North Carolina of four major types of cancer—breast, colorectal, lung, and prostate.

Of the 133,480 North Carolinians diagnosed with cancer between 1990 and 1994, we estimate that more than 87,000 (65%) were still alive in early 1995. Breast cancer was the most prevalent cancer type in North Carolina and prostate cancer was second most prevalent. Both had high incidence (17% breast; 14% prostate) and low mortality (5% breast; 4% prostate). Cancer of the colon and rectum ranked third in prevalence and

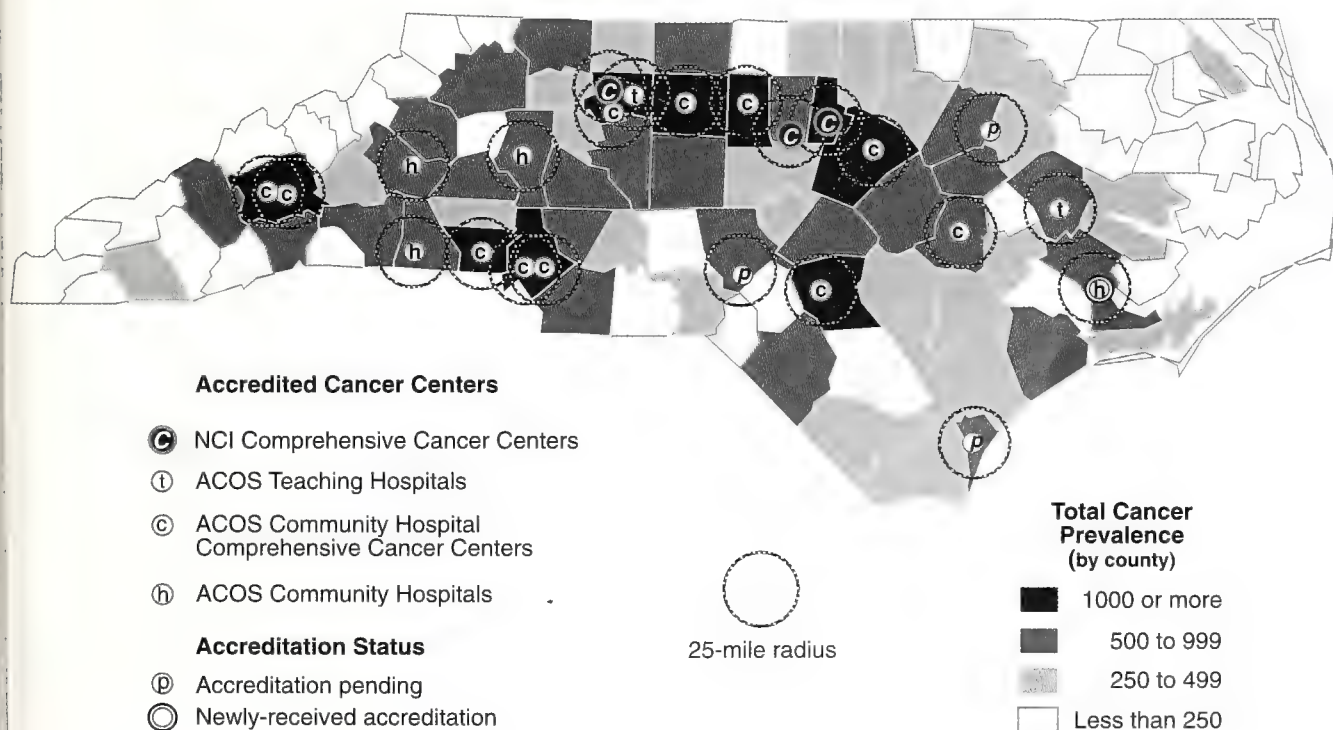
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“...physician awareness of (North Carolinians) who must confront the physical, psychological, financial, social, and other consequences of cancer is especially important.”

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**Fig 1:** Cancer prevalence in North Carolina by Area Health Education Center. Data source: North Carolina Central Cancer Registry, 1990-1994.



**Fig 2:** 1994 National Cancer Institute and American College of Surgeons Accredited Cancer Centers against total cancer prevalence. Data sources: North Carolina 1994 Hospital Book and North Carolina Department of Environment, Health, and Natural Resources, State Center for Health Environmental Statistics, Central Cancer Registry.



that of lung, a distant fourth. Colorectal cancer incidence and mortality were roughly equivalent (13%; 11%). Lung cancer incidence was high (16% of new cancer cases) but was greatly exceeded by its mortality (35% of all cancer deaths).

The data on geographic distribution of cancer prevalence (Figure 1) and geographic access to cancer care (Figure 2) can be used both in planning educational programs for health care professionals and in designing transportation-to-care and other support services for cancer patients. We believe that physician awareness of the large number of individuals in the state who must confront the physical, psychological, financial, social, and other consequences of cancer is especially important.

We plan to update the present study with information recently available from the Central Cancer Registry, which now gathers data on the first course of treatment of newly diagnosed cancer patients, and on patient survival. Such information will allow health care planners, caregivers, legislators, and advocacy groups in North Carolina to assure the adequacy of resources to combat and control this challenging disease. □

**Acknowledgments:** *The authors thank Dr. Frank Torti for supporting this project and Dr. Tim Aldrich for assisting with data access and study design, as well as reviewing an earlier version of the manuscript.*

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## Manuscript Preparation

Prepare papers according to the "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (N Engl J Med 1991;324:424-8) with the following exceptions: 1) no abstract is needed; 2) no running title is needed; and 3) report measurements in metric units; use of the International System of Units (SI) is optional.

Submit a cover letter and a 3 1/2-inch computer disk that contains the text written in MS DOS- or Macintosh-compatible format. Also enclose three hard copies of the text for review purposes. Double space text with one-inch margins. Please do not "format" the text (e.g. no variations in type size, no bold face, no italics, no embedded endnotes).

Submit photographic illustrations, in duplicate, as high-quality color 35mm slides or 5-by-7 or 8-by-10-inch glossy prints, or as black-and-white glossy prints (5-by-7 or 8-by-10-inch). Label all illustrations with author's name, number them sequentially according to their position in the text, and indicate the orientation of the images, if necessary. Do not write directly on the backs of prints. This can damage them. If figures require printing in four-color process, we may ask the author to pay printing fees or a portion thereof.

Submit tables, charts, and graphs as hard copy and include copies on disk, in their original format and translated as TIFF, PICT, or EPS documents. Type all figure legends separately. Tables should be typed, double-spaced, one to a single sheet of paper. All tables must have titles and consecutive Arabic numbers.

Keep references to a minimum (preferably no more than

15), retaining those that document important points. The "Uniform Requirements" cited above contain reference format. We customarily list the first three authors for "et al"-type references. Authors are responsible for the accuracy and pertinence of all citations.

Avoid abbreviations entirely if possible; keep them to a minimum if not. When used, completely define abbreviations at the first point of usage in the text.

## Manuscript Review and Editing

A medically qualified editor reads all manuscripts and, in most instances, sends them out for further review by one or more other members of the North Carolina Medical Society. Authors' cover letters must include a line that states that their submitted manuscripts are not under consideration for publication elsewhere. It is not the *Journal's* policy to reprint previously published articles. Decisions to publish or not are made by the editors, advised by the peer reviewers.

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# Should We Test Women for Inherited Susceptibility to Breast Cancer?

## What Do NC Primary Care Physicians Think

Michael S. O'Malley, PhD, Carrie N. Klabunde, PhD, Elizabeth D. McKinley, MD, and Beth Newman, PhD

Inherited susceptibility accounts for an estimated 5%-10% of all new breast cancer cases.<sup>1-3</sup> Based on studies of families with unusually high numbers of cancers across several generations, scientists have identified two genes, BRCA1 and BRCA2, linked to increased cancer risk. Women with BRCA1 mutations are estimated to have 80%-90% lifetime risk of developing breast cancer (including a 50% chance of developing the disease by age 50) and a 25%-65% lifetime risk for developing ovarian cancer. Women with BRCA1 and BRCA2 mutations have a similar risk of developing breast cancer, but those with BRCA2 mutations appear to have a somewhat lower risk for ovarian cancer than women with BRCA1 mutations.<sup>1-3</sup>

Despite these facts, the *clinical* significance of detecting BRCA1 and BRCA2 mutations in the general population is not well understood, and uncertainty surrounds testing for breast cancer inherited susceptibility.<sup>4-5</sup> Scientists have identified more than 200 mutations of the BRCA1 and BRCA2 genes, but not all mutations have been linked to increased cancer risk.<sup>4-5</sup> The sensitivity and specificity of available tests have not been adequately characterized.<sup>5</sup> The benefits of early detection and clinical interventions following a positive test are unproved.<sup>1,6,7</sup> Important ethical concerns, including potential insurance and employment discrimination, and the psychological implications of testing also remain unresolved.<sup>6-8</sup> Expert groups, such as the American Society of Human Genetics, the Advisory Council of the National Human Genome Research Institute, and the National Breast Cancer Coalition, have recommended that testing take place only in a research context, and the American Society of Clinical Oncology has encouraged testing

in the context of long-term outcome studies.<sup>9-12</sup> Nevertheless, in the past year three commercial laboratories have announced the availability of tests for BRCA1 and BRCA2 mutations.<sup>4</sup>

If public demand for genetic testing of breast cancer susceptibility turns out to be high, primary care physicians are likely to shoulder the initial burden of discussing testing with patients and family members. Because little is known about primary care physicians' opinions on testing for breast cancer inherited susceptibility, we examined the planned recommendations of community-based, primary care physicians in North Carolina. We asked physicians about testing for inherited susceptibility and about the follow-up of positive test results.

### Methods

**Design, subjects, and sample:** This was a cross-sectional study. Eligible respondents consisted of all licensed, active, nonfederal, nonacademic, nontrainee primary care physicians (in general/family practice, gynecology/obstetrics, or general internal medicine) registered with the North Carolina Medical Board in 1993-1994. We randomly selected half of the 3,667 physicians who met these criteria, then excluded physicians who had moved, retired, died, or had left the practice of community-based primary care medicine. This produced a sample of 1,292 physicians.

**Survey methods:** The survey took place between October 1994, and June 1995. It consisted of four mailings (waves 1 - 4) that

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included self-addressed, postage-paid return envelopes. Postcard reminders were sent after waves 1 - 3 (if necessary), and we conducted a telephone/fax follow-up of randomly selected nonrespondents after wave 4. The self-administered questionnaire concerned cancer screening for women and required approximately 20 minutes to complete. The telephone/fax questionnaire took less than 10 minutes. No monetary, continuing education, or other incentive was offered.

We obtained personal and practice characteristics related to the respondents from the North Carolina Medical Board's practitioner database and our survey questionnaire.

**Recommendations.** We identified BRCA1 as a locus that predisposes women to breast cancer, and asked physicians to consider a test that identified almost all women with inherited susceptibility while excluding almost all women without it. We then asked physicians—cost issues excluded—to identify patients whom they would recommend have the test (Appendix, page 180). We next presented the case of an asymptomatic, 35-year-old woman with a confirmed inherited susceptibility that conferred an 80% chance of developing breast cancer at some time during her life and a 50% chance of developing breast cancer before age 50. Physicians were then asked to identify which of the following options they would recommend to this patient (Appendix): breast cancer screening (regular breast self-examination; annual or more frequent mammography and clinical breast exam); regular ovarian cancer screening (CA-125 and transvaginal ultrasound); chemoprevention (participation in a clinical trial using tamoxifen); and surgery (prophylactic mastectomy; prophylactic oophorectomy).

**Analysis:** We used descriptive statistics to characterize our respondents. In addition, we used contingency tables and the chi-square test to examine associations between physicians' recommendations and the following personal and practice characteristics (Table 1, at right). Because nonwhite physicians constituted such a small proportion of the sample, race was not included in subsequent analyses.

## Results

**Respondents.** Of the 1,292 eligible physicians, 545 (42%) completed questionnaires. More than 80% of respondents were white and male (Table 1). More than 40% were general or family practitioners; approximately 30% were in solo practice, practiced in rural areas, and reported a nominal medical school affiliation. Compared to all eligible physicians, respondents were significantly ( $p < 0.01$ ) more likely to be gynecologists/obstetricians (34% vs. 23%) and less likely to be general internists (24% vs. 32%). Responding physicians were also significantly more often white (93% vs. 88%,  $p < 0.01$ ) and female (18% vs. 16%,  $p = 0.04$ ) than nonrespondents and tended more often to practice in rural areas (32% vs. 30%,  $p = 0.08$ ). Because the shortened

telephone/fax follow-up questionnaire did not include questions on inherited susceptibility to breast cancer, the sample for analysis of physicians' recommendations for testing and follow-up consisted of 510 respondents. Physicians' recommendations for testing ( $p = 0.31$ ) and follow-up ( $p = 0.46$ ) did not differ significantly between early (wave 1), middle (wave 2), and late (waves 3 - 4) respondents.

**Recommendations for testing.** Given an accurate test for BRCA1 and setting aside cost, 45% of responding physicians said they would recommend that *all* women be tested, and 19% said they would recommend that women with any family history be tested (Table 2, next page). About one-third would limit testing to women with at least one first-degree family member with breast cancer. Few said they would not recommend testing for any women. The percentage of physicians giving each recommendation did not differ significantly by specialty or any other physician characteristic.

**Recommendations for follow-up of a positive test.** Given an asymptomatic, 35-year-old woman with a positive test for inherited susceptibility to breast cancer, 94% of responding physicians said they would recommend follow-up by regular screening mammography and clinical breast exam, annually (75%) or more frequently (19%). Only 11% of physicians said they would recommend ovarian cancer screening.

Half the responding physicians advocated intervention in addition to screening (Table 3, next page). Slightly more than

**Table 1. Personal and practice characteristics of 545 responding physicians**

Male	82%
White	93%
Metropolitan practice location	68%
Medical school affiliation	31%
Mean years since medical school	20
Specialty	
General or Family Practice (GP/FP)	42%
Gynecology/Obstetrics	34%
Internal Medicine	24%
Practice type	
Single specialty group	48%
Solo	28%
Multiple specialty group	15%
Other	9%
Mean number of patients seen each week	102
Recommend breast cancer screening to women ages 30-39	78%
Patient demand: A lot of/all my patients with family history of breast cancer ask about inherited susceptibility	46%



30% would recommend participation in a chemoprevention trial using tamoxifen, and another 19% said they would recommend prophylactic surgery. Surgery almost always was limited to prophylactic mastectomy. A small percentage of physicians (4%) recommended follow-up that did not include screening, with most (3%) recommending prophylactic surgery. No physician reported that he or she would not recommend follow-up.

Among all three specialties, screening only was the most commonly recommended follow-up, followed by screening plus chemoprevention and screening plus surgery. Compared to the other two specialties, gynecologists/obstetricians were significantly more likely to recommend surgery and less likely to recommend screening only. General and family practitioners more often recommended screening only. General internists were more likely to recommend screening plus chemoprevention. Older physicians (graduated more than 25 years) recommended screening only more (56% vs. 41%) and screening plus chemoprevention less (21% vs. 36%) than did younger physicians ( $p \leq 0.01$ ). Rural physicians tended to recommend screening only more (53% vs. 43%) and screening plus chemoprevention less (26% vs. 34%) than did physicians living in metropolitan areas ( $p = 0.07$ ). There was no association between physicians' recommendations for testing and their recommendations for follow-up of a positive test ( $p = 0.94$ ).

**Need for information.** When asked about inherited susceptibility to breast cancer, 85% of all physicians agreed they needed more information, with 41% agreeing strongly. When asked about breast cancer screening, 68% said they needed more information, with 22% agreeing strongly. Physicians were equally desirous of information about ovarian cancer screening and inherited susceptibility to ovarian cancer; 80%-85% said they needed additional information on these topics.

**Table 2. Which women do primary care physicians think should be tested for inherited susceptibility to breast cancer?**

	All respondents* (n=499)	OB/GYN (n=173)	By Specialty**	
			GP/FP (n=205)	IM (n=121)
Test all women	45%	51%	42%	41%
Test only those with any family history of breast cancer	19%	16%	22%	19%
Test only those who have at least one first-degree relative with breast cancer	31%	30%	30%	32%
Do not test/other***	5%	3%	6%	8%

\* Of the 545 responding physicians, 35 answered only the telephone/fax survey, which did not include this question. Another 11 physicians did not respond when asked this question.

\*\* Responses by specialty did not differ significantly; chi square 7.6 (6df,  $p = 0.27$ )

\*\*\* A total of 24 physicians said they would not test at all; four would use some other basis (such as a request from a woman for the test).

**Table 3. Physician recommendations for follow-up of positive test in a 35-year-old woman**

	All respondents* (n=508)	OB/GYN (n=177)	By Specialty**	
			GP/FP (n=208)	IM (n=123)
Mammogram and self-exam (screening) only	46%	36%	54%	46%
Screening + chemoprevention	31%	31%	28%	37%
Screening + surgery (+/- chemoprevention)	19%	27%	14%	15%
Other	4%	6%	3%	2%

\* Of the 545 responding physicians, 35 answered the telephone/fax follow-up survey, which did not include this question. Another two physicians did not respond when asked this question.

\*\* Responses by specialty differ significantly; chi square = 21.4 (6 df),  $p = 0.002$ .

## Discussion

Until recently, genetic testing for inherited cancer susceptibility was confined to research settings, but commercial tests are now increasingly available to practicing physicians. A recent study of commercial testing for susceptibility to familial adenomatous polyposis found significant concerns with physician office-based testing.<sup>13</sup> Although physicians appropriately ordered the test in 83% of the cases, they misinterpreted the results about one-third of the time, most often calling an indeterminate test result negative when it was not. Moreover, fewer than 20% of those tested provided informed consent or received recommended counseling.

Experts have begun to issue recommendations for testing for breast cancer inherited susceptibility and for follow-up.<sup>1,9-12,14</sup> The American Society of Clinical Oncology recommends testing only those women who have had early onset breast cancer or have a strong family history of breast cancer—and only when results can be interpreted and will influence medical management of the patient or a family member.<sup>12</sup> Kaiser Permanente's evidence-based practice guidelines<sup>14</sup> suggest of-

fering BRCA1 testing and counseling to women with a personal history of breast cancer before age 40; family members with known mutations; or three or more relatives having breast and/or ovarian cancer.

Most current recommendations say that physicians should: test in the context of research or long-term outcome studies; discuss the risks and benefits inherent in testing; acknowledge the uncertainty surrounding appropriate follow-up for a positive test; provide counseling and support before and after testing; and obtain informed consent.<sup>1, 9-12, 14</sup>

The Cancer Genetics Studies Consortium of the National Human Genome Research Institute recently published provisional guidelines for follow-up care of persons with known BRCA1 and BRCA2 mutations. These guidelines may also apply to persons whose individual mutation status is unknown but whose family members have a mutation.<sup>1</sup> The Consortium recommended: regular breast cancer screening (monthly breast self examination; annual or semi-annual clinical breast examination; and annual mammography) beginning at ages 25-35 years; and regular ovarian cancer screening (annual or semi-annual transvaginal ultrasound with color Doppler and the CA-125 blood test) beginning at ages 25-35 years. Because persons with BRCA1 and BRCA2 mutations, including men, may be at increased risk for other cancers, the Consortium also recommended regular colon cancer screening (annual fecal occult blood testing; flexible sigmoidoscopy every three to five years) and counseling regarding options for prostate cancer screening beginning at age 50. Due to insufficient evidence, the Consortium did not make recommendations about: prophylactic surgery (simple mastectomy and/or bilateral oophorectomy); hormone replacement therapy; use of hormonal contraceptives, or chemoprevention. Despite the lack of clear evidence of benefit, the Consortium did support the possible benefits of lifestyle modifications, including a low-fat/high fiber diet with increased fruit and vegetable consumption, regular exercise, and avoidance of tobacco products.

Our study provides insight into what practicing primary care physicians in North Carolina think about testing for inherited susceptibility to breast cancer and follow-up of a positive test. Almost two-thirds of our respondents said they would recommend testing women who had little evidence of inherited breast cancer susceptibility and 45% would test all women. Only about one-third of physicians would limit testing to women with at least one first-degree relative with breast cancer.

Facing an asymptomatic 35-year-old woman with a positive test, more than half the physicians would recommend intensified follow-up and 22% would recommend prophylactic surgery. Without prompting, few physicians in our survey recognized the link between breast and ovarian cancer susceptibility by recommending regular ovarian cancer screening. Most physicians wanted to receive more information about inherited susceptibility to breast and ovarian cancer.

Our study has several limitations. The survey was conducted during late 1994 and early 1995, concurrent with initial identification of BRCA1 but before commercial tests and published guidelines were available. Physicians' attitudes may have changed in the past 18 months. Actual physician behavior is likely to differ from the self-reports of projected behavior using an accurate test with no cost considerations. Testing is expensive, ranging from several hundred dollars for tests that identify one or more specific mutations to \$2,400 for tests involving sequence analysis of large sections of the BRCA1 and BRCA2 genes.<sup>4</sup> Physicians may be reluctant to recommend such costly tests. Also, self-reports of screening behavior generally overestimate actual behavior.<sup>15</sup>

Our survey response rate was 42%, and physicians less interested in screening and testing may have chosen not to participate. Other than physician specialty, however, there was little difference between survey respondents and nonrespondents. Responses about testing and follow-up did not differ significantly among early, middle, and late respondents. It is likely that our results are generalizable to community-based, primary care physicians in North Carolina but may not reflect attitudes of physicians in other parts of the country.

Physician advice will likely influence people's decisions to be tested for inherited cancer susceptibility. Physician recommendation is critically important in women's use of screening mammography.<sup>16</sup> A recent study of women's attitudes toward genetic testing for breast cancer found that more than 60% of breast cancer patients and their relatives and more than 80% of women in the general public said they would get information and advice from their physicians before making a final decision about testing.<sup>17</sup>

In the struggle against breast cancer, science has presented clinicians and women with a new tool, one that is potentially powerful but essentially untested. Given commercial pressures, media exposure, and public demand, it is almost inevitable that testing for inherited breast cancer susceptibility will escape from research settings and specialty clinics and invade community-based, primary care practices. Testing for inherited susceptibility to colon and other cancers will not be far behind.<sup>13,18</sup> Patients will look to their primary care physicians for advice. Our study suggests that community-based, primary care physicians need and want more information about testing for inherited susceptibility to cancers. We need educational resources for these physicians so they can help patients and their families with the difficult decisions that now must be made in the face of life-altering uncertainties. □

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*Continued on next page*



**Appendix.** Questions regarding genetic testing for inherited susceptibility to breast cancer included in the survey of NC primary care physicians conducted in October 1994-May 1995.

1. Scientists believe they are close to isolating BRCA1, a gene that passes along a predisposition to breast cancer. Consider a test that identified almost all of the women with BRCA1, while also correctly excluding almost all the women without the gene. Setting aside the issue of cost, if such a test were available, do you think you would recommend this test to:

- All women
- Only women with one or more first degree relatives (mother, sister, daughter) with breast cancer
- Only women with two or more first degree relatives with breast cancer
- Women with any family history
- No women
- Other

2. Consider an asymptomatic, 35-year-old woman with a confirmed inherited susceptibility to breast cancer that confers an 80% chance of developing breast cancer during her lifetime and a 50% chance of developing the disease before age 50. What do you think you would recommend to the woman as a next step? Would you recommend:

- Regular breast self-exam
- Annual mammography and clinical breast exam
- Mammography and clinical breast exam more than once a year
- Regular ovarian cancer screening with CA-125 and transvaginal ultrasound
- Prophylactic mastectomy
- Prophylactic oophorectomy
- Participation in a clinical trial of breast cancer chemoprevention using tamoxifen
- Other

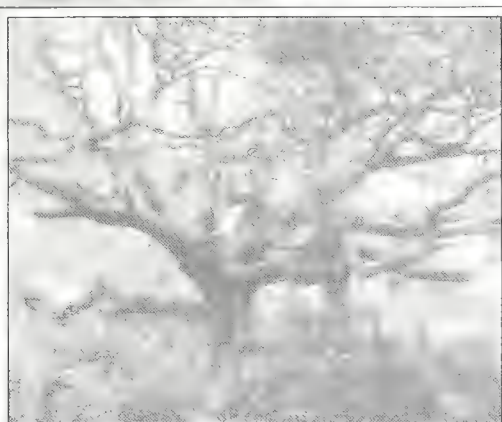
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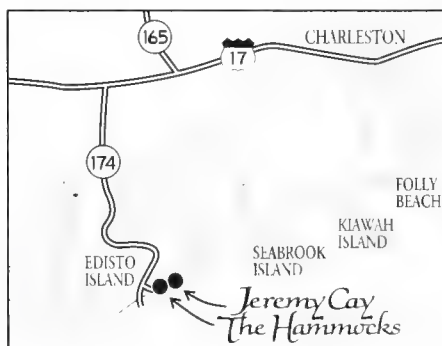
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# Taking Sides

## Can We Reach Middle Ground in a Managed Care System?

James E. Hill, Jr., PA-C, MEd

Early 1971 found me in Quantico, VA, at The Basic School for the Marine Corps. I had graduated from college in August 1970, and then completed Marine Corps Officer Candidate School; now I was a young second lieutenant training for combat. All Marine Corps officers train as infantry officers first, based on the premise that "while nobody likes to fight, somebody has to know how." Our instructors—first lieutenants and captains who had just returned from combat duty in Vietnam—were the most experienced and best role models we could hope to have.

There were courses in weapons use (M-16 rifle, M-60 machine gun, grenade launchers, mortars, flame-throwers and heavier artillery), courses in small unit offensive tactics and ambush patrols, in setting and defusing mines, in amphibious landings, helicopter assaults, and tank support. Physical conditioning consisted of daily three- to five-mile runs in combat boots, 20 mile hikes with full packs, the obstacle course, pull-ups and sit-ups, and bayonet fighting with pugil sticks. Throughout this training our instructors told us their war stories and the lessons they had learned. Basically, we were told that Americans traditionally take sides and fight that way. In World War II, the Americans and Allied Powers were the "good guys"; the Japanese, Germans and Axis Powers, the "bad guys."

Unfortunately, the war in Vietnam had blurred the distinction of sides. It was difficult to tell who we were trying to help in Vietnam. Vietnamese villagers who asked for assistance by day became Viet Cong guerrillas who fought against us at night. Eventually, no one was trusted and no one won. Americans became disillusioned, disheartened, and disenchanted. My four-year tour ended without seeing combat, and I left looking forward to a health care career where it would not be necessary to take sides; where the care of the patient would always be the primary concern.

After completing the Physicians Assistant program at Duke, I began work in the emergency department of a large

metropolitan hospital. I spent 10 years in a practice based on my own experiences and training as well as those of my physician supervisors. We ordered whatever lab tests or x-rays we thought were necessary without considering the costs. We wrote prescriptions for whatever medications we believed were best without considering a formulary. We consulted specialist physicians whenever we had questions about diagnosis or further care. It was wide open medicine, and while expensive, costs did not play a major role since "someone" else was paying—the insurance company, the patient, or the government. Everything we did was done on behalf of the patient; we did not have to "take sides."

I left clinical medicine for eight years but kept up my academic knowledge through continuing education programs. In 1994, I began seeing patients again on a part-time basis. In the interval away from the "front lines," I had been working within the managed care system at a job with an associated health care company. I was aware of the "new rules" for practicing medicine, but the impact of those new rules did not directly affect me because I was involved in disease management and immunization and wellness programs, not direct patient care. Even since my return, my part-time work in the urgent care facility of a group model HMO keeps the rules from affecting me like they have other primary care and specialty care practitioners in managed care settings.

Urgent care medicine is different, even in an HMO; patient assessment and diagnostic needs override cost concerns. If a 53-year-old man presents with new onset headache and worrisome physical findings or symptomatology, the order for a computed tomogram of the head is not questioned. If a 17-year-old woman presents with low abdominal pain and an adnexal mass on physical exam, no one questions the need for a pelvic ultrasonogram. If a 45-year-old man is suspected of having bacterial prostatitis, ciprofloxacin can be prescribed instead of the cheaper trimethoprim-sulfamethoxazole because the provider can document a higher response rate with ciprofloxacin. I know that this is so because these scenarios involved patients I saw.

One issue continues to raise its ugly head, though. It is the instance in which clinical judgments—physician decisions,

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preferences, and orders—conflict with the financial model of an HMO. In general, managed care organizations are structured “for profit.” To achieve this, they manage total costs, including care provided to the patient. Horror stories abound (*Journal* readers may have personal experiences to support those stories) about the denial of diagnostic studies or care that resulted in less than optimal outcomes. But the real issue appears to be the reduction in physician control over patient care. Many providers have felt that they were being asked to take sides, to be an advocate for the patient or an adversary of the HMO.

My supervising physician in the emergency department liked to talk about the team approach for taking care of patients. The PA, nurse, pharmacist, and other professionals were members of the team—with the physician as captain. My supervisor was and still is right in his analogy. Somebody has to be in charge and ultimately assume responsibility for the diagnosis and treatment of the patient. No one wants an administrator making medical decisions about care. To be quite honest, I’m sure no administrator wants to make those medical decisions, but those administrators do have an obligation to ensure the profitability of the HMO so that the HMO can grow and continue to provide care to patients. Remember, HMO stands for health *maintenance* organization; only by maintaining the health of their patients do HMOs accomplish their mission and improve health care.

## HMOs: Survival of the “Fittest”

What is the answer? First, I believe that we have allowed short-term profits and a narrow focus to blind us. Up to now, managed care has primarily meant managed cost, but that is changing. Employer groups and potential patients who examine different HMO selections find the cost of membership important, but the services, both preventive and acute and chronic disease treatment, that ensure the health and satisfaction of the members have growing value. The change in emphasis can be seen in the rising interest in Health Plan Employer Data and Information Set (HEDIS) scores and National Committee for Quality Assurance (NCQA) accreditation status and the comparison of HMO “report cards.”<sup>1</sup> It’s not just about dollars anymore. As more HMOs move into North Carolina, competition among them will require them to meet the goal of total care *and* customer satisfaction in order to survive.

Secondly, health care providers are beginning to realize that they are not just another “employee” to the HMO; without them to diagnose and treat, health care doesn’t exist in any functional way. It’s clear that providers will have to work closely with HMO administrative staffs to oversee quality of care and reduce costs. Neither can do it alone. The development of clinical guidelines for treating specific diseases is one way to accomplish the goal. It is possible to standardize and improve the treatment of disease without losing sight of the individual. My supervising physician is still right about the team concept; he just has to accept that the CEO, CFO, COO, and other HMO

administrators are part of that team and can contribute toward the success of the managed care initiative.

My experiences on both sides of this issue have helped me to see the control quandary in which HMOs and providers find themselves. Physicians and other providers have started to speak out for the patient. HMO administrators are starting to recognize that, while health care can be helped by a businesslike manner, it is more than a mere business. Business can be impersonal, cold, and cruel; when all is said and done, business exists mainly for profit. Health care needs to be more personal, understanding, and caring. The best way to reach middle ground is for each side to accept that the other really does have the best interests of the health care system and the patients at heart. The assumption that both sides want the best possible solution will let us begin to agree on (or at least discuss) strategies that will get us where we want to be.

## A Patient’s Perception of Precariousness

Last year I treated a patient who touched me in a lasting way. She was in her mid-50s and presented with increasing shortness of breath and fatigue over a couple of weeks. She’d had a mastectomy four years previously for breast cancer, and six months ago she’d had similar shortness of breath and fatigue that turned out to be caused by pulmonary involvement of metastatic cancer. Her physical exam when I saw her revealed decreased breath sounds, dullness to percussion, and egophony at the right base. A chest x-ray showed a pleural effusion, explaining her signs and symptoms. Pending arrangements for a thoracentesis, she began to weep as we spoke. Her story and perceptions were a sad commentary.

She was a single parent whose grown daughter lived across town. She worked as a bookkeeper for a small company and lived in a two-story apartment. She’d become so short of breath that she could not walk up the stairs to her second floor bedroom and had been sleeping on the downstairs couch. I asked her why she didn’t move to another apartment or ask for help from family, friends, or coworkers. She told me that she had no family (except for her daughter) and no close friends in town. She had not told anyone at work about her cancer or medical problems. She made only enough money to live from paycheck to paycheck and could not afford to move. She had her HMO coverage through her job, but she did not want to talk about her symptoms with anyone at work for fear that they might make her quit (or even fire her) if they knew she was sick (she could not afford health insurance on her own).

The system had worked in the sense of providing HMO coverage for surgery, chemotherapy, medication, and other treatments. Her doctors and the HMO had worked together for the benefit of the patient, otherwise, she would be one of the forgotten ones. She received appropriate care and no one complained about the cost of her treatment. It was necessary.

In my patient’s mind, her health care was not at all assured and could be taken away much too easily and quickly. That



"perception" is of concern since not every similar scenario will work as well. Her family and financial issues were not addressed during her encounters, but the "medical care" provided did add an important quality-of-life component in this situation. Not a complete solution, but it worked to help her.

## The Struggle for Improved Health Care

In Vietnam, the Marines were the best trained and finest military force our country could place in harm's way. They had the skills and tools necessary to fight and win battles in the war against communist aggression. A government fraught with bureaucracy and without a clear vision of the goal resulted in a war that could not be won. The support of the American people was lost because the leaders lost sight of our reasons for being there.

American clinical practitioners are among the best trained and most committed health care "force" in the world. We struggle daily in a system that can all too easily work against us and our patients. Consequently, the war for improved health care can be lost in spite of individual caring and concern. We must regain confidence in that system.

My patient believed that we always take sides—we either help with her care or not. In her mind, not everyone wants to do the right thing. If enough people start to believe that about managed care, then no one will be trusted and no one will win. Americans will become disillusioned, disheartened, and disenchanted. Only when providers and HMOs are on equal ground will managed care become better managed and truly caring. □

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## Commentary

# Reaching Equal Ground With Managed Care

James P. Weaver, MD, Cardiothoracic Surgeon,  
Durham, and Journal Associate Editor

James Hill's readable article, "Taking Sides," presents a tempting direction toward which physicians might trudge into the future. Unfortunately, I see it as the song of the managed care Sirens that will lead us all, patients and physicians alike, onto the pernicious rocks of oblivion. It might, on the surface, seem congenial to take Mr. Hill's Rodney King approach of, "I wish we could all just get along," but there are deeper issues that must be explored before HMOs and providers can be on "equal ground," and before managed care can become "better managed and truly caring."

Mr. Hill admits that it was difficult at times to tell who was on which side in Vietnam. Just that same difficulty has caused patients much consternation in the managed care arena. Once in an HMO, patients are never sure who is really on their side. Are my "providers" capitulated? Do they get paid to withhold care? (After all, it is not always clear what care is "necessary.") Why do they not send me to a vascular surgeon to evaluate my claudication? Does the surgeon's fee come out of my primary care provider's bonus pot at the end of the year? And why did my doctor (provider) send me home so early after my thoracotomy? I was frightened, in pain, and felt as if I were pushed out the door onto the street.

Contrary to what Mr. Hill believes, the "real issue" is not what "appears to be the reduction in physician control over patient care," but rather the decimation of the sacred physician-patient relationship.

The evolution—we are not in a "revolution" as so many would have us believe—of our current prepayment system for medical care is the result of "tinkering" over the past 60 years. It began in earnest in the 1930s with the introduction of insurance for medical care, and it erupted when the federal government legalized the exclusion of employer premiums for medical insurance from taxes after World War II. That tax provision assured the transforming presence of an insurance industry in the delivery of medical care, and began the development of today's classic triangle: patient-physician-payer. This triangle, unfortunately, is fundamentally a flawed relationship. Managed care is society's current effort to preserve a triangular relationship even though it is basically destructive. The most obvious manifestations of this distortion of relationships are seen when managed care companies practice medicine, physicians abandon their historic advocacy of individual patients in order to save group resources and patients try to spend other people's money despite their assigned provider's obfuscatory behavior. This parody of medical care delivery will not stop until we have fundamental changes in the destructive triangle.

When will providers (to use Mr. Hill's word) and HMOs be on equal ground? Only when physicians are paid by their patients and not by third parties. This is the singular change needed to restore the credibility of physicians (and other providers), to restore honesty and loyalty where it appropriately belongs.

Physicians can work with managed care organizations to create efficient medical care delivery; physicians can help develop care maps; physicians can work on outcome studies—that is our common ground. But when we are paid by managed care organizations that are touting "quality cost-efficient care," when the sick public feels pushed around and distrustful of their caregivers, then our adoption of the message of our managed care employers is rightly viewed with suspicion by our patients. Wouldn't physicians feel better about themselves, and

wouldn't patients listen more, if physicians were not in the pockets of the third parties? If we were paid by our patients we could honestly champion cost efficiency and our patients would not view our message as disingenuous.

And so I agree that providers and physicians can work with managed care. We do not have to "take sides." We have much common ground. But Medicine must recognize that the common goals of efficiency and cost containment can be achieved only in a setting that nurtures the primacy and sacredness of the individual physician-patient relationship.

Physicians who have ceded absolute control of their livelihood to HMOs are not on "equal ground" with them. The coercive forces used by managed care are too formidable and have forced us into a precarious, deceitful role. One has only to read the daily newspaper to discover that the public is well aware of this deception. Stepping out of this destructive triad by eschewing third-party reimbursement will give physicians a new sense of professional independence, integrity, and credibility that will let them enter into the current debates with the authority necessary to promote positive change. □

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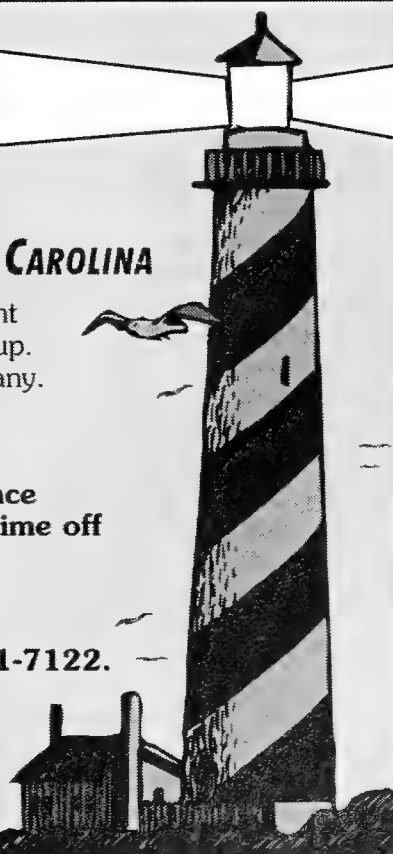
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# Nutrition and Parkinson's Disease

Gupta Pandarinath, MD, and Aimee Lenhart, RD, LDN

Parkinson's disease is a slowly progressive, debilitating, degenerative disease of the brain characterized by "pill-rolling" tremor, slowness of movement, muscular rigidity, gait instability, difficulty swallowing, loss of ability to smell, difficulty in speech, depression, and dementia. Late complications include bed sores, infections, malnutrition, even a vegetative state. The symptoms are thought to reflect the premature death of dopamine-producing cells in the substantia nigra of the brain.

By conservative estimates, 10% of the population older than 65 is affected, but Parkinson's disease is being recognized with increasing frequency in younger patients. The care of these patients' disease is complex and difficult for both patient and caregiver. Presently available treatments attempt to: 1) stimulate dopamine-producing and dopamine-receptive cells to their maximum efficiency; 2) limit the loss of dopamine-containing cells through the use of antioxidants; and 3) provide surgical relief through pallidotomy, or fetal cell transplants and so on.

The needs of individual patients with Parkinson's disease vary according to the severity of disease, response to treatment, side effects of medications, and comorbid conditions. Providing care is challenging, at times frustrating, and the role of nutrition is often overlooked. We present here our recommendations about nutritional support, the rationale for which is the known pathophysiology of Parkinson's disease, coupled with standard nutritional guidelines. Our aims are to ensure intake of nutrients sufficient to maintain desirable weight and prevent weight loss, to lessen swallowing difficulties caused by the disease or the dry mouth induced by medication, to avoid interfering with the therapeutic effect of anti-Parkinson drugs, to regulate bowel function, and to maintain optimal hydration.

## Nutrient Intake

Patients with Parkinson's disease are often underweight. The challenge is to maintain ideal body weight. Nutrient needs may actually be higher than usual because the dyskinesia and severe tremors expend energy. As the disease progresses, muscle rigidity may interfere with patients' ability to care for and feed themselves or control the position of the head and trunk. Simultaneous movements such as using a knife and fork are difficult, and perception, including spatial organization, can become impaired. An occupational therapist may be able to prescribe specialized feeding utensils (weighted spoons, wide-lipped spoons, utensils with built-up handles) that will help patients cope with these mechanical difficulties and preserve independence. A wrist weight may improve steadiness of the hand. A sticky substance called *Dycem* can keep plates and bowls from moving around the feeding area.

Feeding times may be lengthy due to the slowness of eating; as a result, the amount of food ingested often decreases. It is important to keep the food as appealing as possible. Placing heated pellets under the plate can ensure that food stays hot over a long period of time.<sup>1</sup>

In the late stages of Parkinson's disease, dysphagia is common. Adding a thickening agent can make food easier to swallow. If patients cannot take in at least 75% of the recommended calorie level, nutritional supplements, given either by mouth, nasogastric or gastrostomy tube, may be needed. Enteral formulas containing fiber are recommended because they facilitate gastrointestinal motility.<sup>2</sup>

## Bowel Function

Constipation is common in Parkinson's disease. It is important to regulate bowel function by providing adequate amounts of fiber and fluid. Insoluble fiber (cellulose, most hemicelluloses, and lignin) holds water, functions as a laxative, reduces intracolonic pressure, binds minerals, binds bile acids, and increases stool bulk. Soluble fiber (gums, mucilages, algal

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polysaccharides, most pectins) binds cholesterol and bile acids, slows gastric emptying, and provides fermentable material for colonic bacteria.

Dietary fiber may be obtained from raw fruits, vegetables, legumes and nuts; patients should use whole-grain breads and cereals instead of refined products; eliminate "instant" products; and add unprocessed bran to cereals, breads, and casseroles in gradual, divided doses during the day. Fiber alone will not relieve constipation; in addition to increasing dietary fiber, it is imperative to concurrently increase fluid intake as well.

## General Dietary Recommendations

Nutrition must be planned according to each patient's needs. In general, patients should follow the guidelines of the US Department of Agriculture's Food Guide Pyramid (Figure 1, at center).<sup>3</sup> These 1994 guidelines specify that most diets should emphasize whole grains, legumes, fruits, and vegetables, with moderate amounts of low-fat dairy products and lean meats. The vegetarian emphasis provides good fiber intake. A high-carbohydrate (55%-60% of calories), low-fat (20%-25% of calories) diet is important because fat delays gastric emptying.

## Protein Redistribution Diet

In theory, patients may benefit from redistributing dietary protein so that no more than 7 grams (or 10% of the recommended allowance of protein, if lower) at breakfast and lunch. The remainder of the recommended daily allowance for protein (0.8 g/kg body weight/day in adults) is taken at the dinner meal. Foods that are high in protein and should be avoided until the evening meal include all meats and fish, egg whites, gelatin, dairy products, legumes, nuts, chocolate, cookies, cakes, and candy bars. Foods that are low in protein and are unrestricted include fluids (coffee, tea, soda, fruit and vegetable juices, water, and nondairy liquid creamers), fresh and dried fruits, vegetables, low-protein cereals (providing 2 grams of protein per serving or less, such as

Rice Krispies, Kix, Crispix, Corn Flakes, and Puffed Rice), graham crackers, Italian ices, sherbet, hard candy, and condiments such as oil, vinegar, herbs, spices, honey, and jams.

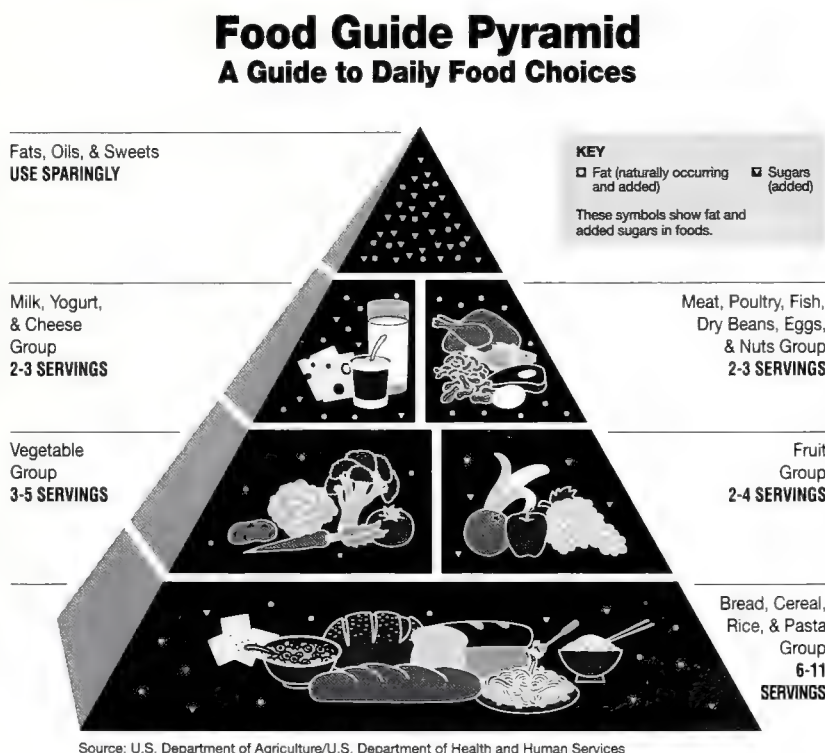
If successful, the protein redistribution diet can significantly prolong the efficacy of levodopa therapy in end-stage patients with fluctuating symptoms. Benefits from the diet should be evident within a week. Since there is a risk of protein deficiency, it is vital that the recommended amount of protein be consumed at the evening meal.

Fava or broad beans (*Vicia faba*) contain L-dopa. Using fava beans in place of other protein foods may smooth out a fluctuating response to medications.

## Amino Acid Modifications

Dietary intake may alter the absorption of drugs used to treat Parkinson's disease. Carbidopa/levodopa (Sinemet) is absorbed

from the proximal small bowel via a saturable, large neutral amino acid (LNAA) transport system—the same system that transports levodopa across the blood-brain barrier. When taken with food, the drug may reach the proximal small bowel along with large quantities of LNAAs (isoleucine, leucine, valine, phenylalanine, tryptophan, and tyrosine). Competition for transport (especially after high-protein meals) can reduce absorption of the drug.<sup>4</sup> Foods that have relatively smaller amounts of LNAAs may provide levodopa



with less competition for sites on the LNAA carrier system. For instance, soy milk contains less of the large, neutral amino acids than cow's or goat's milk. Substituting soy for cow's or goat's milk can provide protein but less competition for the LNAA carrier system (Table 1, next page).<sup>5</sup>

## Vitamin Supplementation

It is speculated that oxidative damage resulting from an unfavorable balance between free radical generation and antioxi-



dant defenses may lead to neuronal death in Parkinson's disease.<sup>6</sup> It makes sense, then, to provide increased amounts of micronutrient antioxidants such as vitamin C, vitamin E, and the carotenoids. More than 80% of the vitamin C in Western-type diets comes from citrus fruits, green vegetables, peppers, tomatoes, berries, and potatoes.<sup>7</sup> The primary sources of vitamin E are vegetable oils;<sup>8</sup> in the US, fruits and vegetables provide about 20% of dietary vitamin E,<sup>9</sup> and some is found in breakfast cereals, peanut butter, eggs, and nuts.<sup>8</sup> A daily vitamin E intake equivalent to 10 mg of alpha-tocopherol (or 15 IU/day) is currently considered adequate for healthy men, but clinical trials typically use supplements of 134 mg/day (200 IU/day) or more.<sup>10</sup> The synthetic form of vitamin E (vitamin E acetate) does not cross the blood brain barrier, but vitamin E succinate does. Finally, carotenoids are found in yellow and orange fruits and vegetables, green vegetables, broccoli, and corn.<sup>10</sup>

## Medication Considerations

Drug-nutrient interactions need to be considered in Parkinson's disease. If levodopa is taken with meals, the gastrointestinal side effects (nausea, vomiting, constipation, dry mouth, anorexia) are diminished but absorption may also be diminished. Giving pyridoxine (vitamin B6), even as little as 5 mg/day, reduces the effectiveness of levodopa, but does not affect the combination of levodopa and carbidopa.<sup>11</sup> Combined levodopa/carbidopa should be taken with vitamin C-rich orange juice and plenty of water to facilitate absorption.

Selegiline (Deprenyl) is a monoamine oxidase-B inhibitor that prolongs the life of dopamine. Unlike the antidepressant monoamine oxidase inhibitors used in psychiatric practice, selegiline in recommended doses does not act on monoamine oxidase-A, and therefore does not cause hypertension after consumption of tyramine-rich foods.<sup>12</sup>

**Table 1. Amino acid profile of selected foods<sup>5</sup>**

Amino acid	Cow's milk	Soy milk
TRY*	113	103
THR	367	271
ISO*	492	346
LEU*	796	578
LYS	644	430
MET	204	96
CYS	75	113
PHE*	392	362
TYR*	392	269
VAL*	544	338
ARG	294	514
HIS	220	170

\* denotes amino acids that use the LNAA carrier system

## Conclusions

Parkinson's disease is a common and devastating neurodegenerative condition. Fortunately, palliative treatments are available. In addition to standard drug and surgical therapy, physical and occupational therapy and careful attention to nutritional and dietary elements can lessen the associated symptoms of the disease and may improve the efficacy of drug therapy. In this article we have presented the personal experiences of the authors as practical and readily usable guidelines, but our review is by no means all-encompassing. More questions remain than we have answers available. □

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# Use of Bicycle Helmets by Greensboro Children

David Greer, and Karl B. Fields, MD

Bicycling accidents kill 900-1,300 individuals each year in the United States.<sup>1,2</sup> Preventive measures, particularly the use of helmets, can reduce bicycle accident head injuries by 85%.<sup>3</sup> Because children suffer most of the head injuries arising from such accidents,<sup>2</sup> younger riders are the appropriate targets of strategies aimed at reducing the frequency and severity of bicycle-related injuries. Enactment and enforcement of bicycle helmet regulations are one way to help prevent pediatric trauma.<sup>4</sup>

Despite data showing that helmet use reduces injury, very few communities have mandated use of helmets by children. In fact, only a small percentage of children own or regularly wear a bicycle helmet. To assess the barriers to bicycle helmet use in Greensboro, North Carolina, we asked parents of bicycle-riding children about their child's riding habits. The results of our survey form the basis of this report.

## Methods

Greensboro and its outlying areas have a population of approximately 300,000 people. The city has not made a formalized effort to encourage children to wear bicycle helmets. The survey took place in the Moses Cone Family Practice Center. Patients attending the Center have demographic characteristics typical of the general population of Greensboro except that 27% are Medicaid recipients.

We asked 77 parents who had at least one bicycle-riding child between the ages of 5 and 16 to participate in our survey; 75 agreed and two declined. All potential participants were informed that the study focused on the bicycle riding habits of children. Participating parents were asked nine questions about bicycle use by their children (Table 1, at right) prior to an independently scheduled physician visit.

A graduate of UNC-Greensboro, Mr. Greer is a medical school applicant. Dr. Fields is Director, Family Medicine Residency Program, Moses Cone Health System, 1125 N. Church St., Greensboro 27401.

A negative response to question 3 (*Does your child ride a bicycle?*) ended the interview. Similarly, because questions 7-9 pertain to reasons for not wearing a helmet; a positive response to question 6 (*Does your child wear a bicycle helmet?*) ended the interview at that point.

We analyzed the data in two groups to ascertain preteen (ages 5-12) versus teenage (13-16) use habits. Frequency distributions and Chi-square tests were obtained using SPSSx data analysis package.

## Results

Only 43% (32 of 75) of the children covered by our survey owned a bicycle helmet. This finding was consistent across both age groups.

When asked whether their child would wear a helmet if one were provided, 86% of parents of children under age 13 said yes. On the other hand, only 36% ( $p=.002$ ) of parents of older children said their child would wear a helmet, even if given to them. Parents appeared to be aware that peer pressure was an instrumental reason for non-use. Seven of the 29 responses (Table 2, next page) given by parents to explain why their child

**Table 1. Survey questions**

1. How many children between the ages of 5 and 16 do you have?
2. What are their ages?
3. Does your child ride a bicycle?
4. What kind of bicycle does your child(ren) have? (mountain, tour 10-speed, hybrid, bmx, other-please specify)
5. How long has your child been riding (in years)
6. Does your child wear a bicycle helmet?
7. If s/he does not wear a bicycle helmet, is cost a factor in not wearing one?
8. What other reasons are there for not wearing a helmet?
9. Would your child(ren) wear a bicycle helmet if s/he had one?

**Table 2. Reasons given by parents as to why children do not use bicycle helmets**

1. Child does not ride far from home; does not ride much; just rides in the yard. (n=14)
2. Child does not like bicycle helmets; helmets aren't "cool." (n=7)
3. Child rides only in the "country" or in areas where there is little automobile traffic. (n=4)
4. Parent had not thought about purchasing a helmet. (n=2)
5. Child had not had a chance to ride bicycle yet because of inclement weather. (n=1)
6. Child had a helmet but lost it. (n=1)

did not use a helmet were that helmets were not "cool," or the child did not "like them." These responses were used more often by the parents of older children (13-16), suggesting that helmet use is likely to be less after puberty, a period of decreasing parental influence. Age was not indicative of helmet ownership, but rather of the likelihood that one would not be used.

Only 12 parents cited financial concerns as a key factor in helmet ownership, but more parents of 13-16 year old children (41.7%) than parents of younger children (23.3%) said that cost was a consideration ( $p=.234$ ).

## Discussion

Several studies have investigated the success of efforts (legislative policies, educational programs, promotional strategies, or combinations of the three) to encourage bicycle helmet use. Legislative efforts have been the most effective strategy.<sup>5</sup> Extrapolation of findings from Howard County, Maryland, (where children's use of bicycle helmets is mandated by law) suggests that a universal requirement of helmet use could prevent about 100 deaths nationwide each year.<sup>3</sup> Since neither the City of Greensboro nor the surrounding county requires helmet use by children, our survey reflects behaviors in a locale with no legislative mandates.

Unidimensional efforts other than legislative mandate may not be effective. Helmet subsidy programs alone are unlikely to

help since, although helmet ownership is on the increase, helmet use is not.<sup>6</sup> Multifaceted education campaigns do increase bicycle helmet use somewhat,<sup>1</sup> but in the absence of legislation, there is no reinforcement for continued helmet use and the memory for the educational intervention does not persist.

The parents of some teenagers said that the cost of purchasing a helmet was a factor in their child's not having one, but most parents did not express this concern. We suspect that "financial concern" has less to do with the actual cost of the helmet and more to do with the belief that the teenager will not wear it, thus making the purchase money poorly spent.

We found a pattern of helmet use that seemed to be determined by residential proximity to the city and by parental perception of traffic intensity. Children—especially younger ones—whose families lived close to or inside the city limits were more likely to wear a bicycle helmet. Rate of use declined as age of the child or residential distance from the city increased. Many parents justified their children's non-use of helmets on the basis of riding "in the country" or in areas with "little traffic," but this reasoning is fallacious because most bicycle accidents represent collisions with fixed objects, not moving traffic.<sup>7</sup> Furthermore, there is no correlation between severity of injury from bicycle crashes and proximity of the accident site to the child's residence. Younger children who ride close to home have as much risk of injury as children who ride close to automobile traffic.<sup>8</sup> Parents need to be consistent in requiring helmet use regardless of where the child rides.<sup>7</sup>

The question of whether all bicycle-riding North Carolinians should be required to wear bicycle helmets deserves debate, but a bill requiring children to wear them merits strong support. Parents often make decisions about helmet purchase and use based on a flawed rationale that assumes the safety of riding helmetless in rural or low traffic areas. Since many North Carolina families live in areas even less densely populated than Greensboro, we expect that rates of helmet use are even lower in other areas of the state. We believe that statewide legislation should be enacted to safeguard North Carolina's children, and educational programs should be designed and directed toward both parents and children. □

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## Commentary

*Robert F. Perry, MD, Medical Director, The PeeDee Clinic, Wilmington*

The study by Greer and Fields underscores the importance of developing a multidisciplinary protocol to more effectively convey the message of bicycle helmet safety to the community and, likewise, emphasizes the urgent need for adopting legislation that mandates the use of this protective equipment by all children in North Carolina.

No one can dispute the fact that helmets save lives and dramatically reduce the incidence of bicycle-related head injuries. Simply stated, helmet use is a common sense issue that any responsible parent, after considering the obvious safety benefits for their child, will invariably support. So why doesn't every child wear a bicycle helmet? As the authors report, only about four out of 10 children in their survey even own a helmet. They propose a number of ostensibly valid reasons to account for this observation. Yet they overlook one of the most critical variables in the parental decision-making process—i.e., personal experience. Emphasis on bicycle helmet use is a relatively recent phenomenon and many adults, especially those over 30, never used a bicycle helmet during childhood and/or never received instruction related to bicycle safety issues. Thus, those who are now responsible for purchasing the helmet for the child, and, thereafter, for encouraging its use, often lack an experiential frame of reference regarding the importance of that equipment. Hence, the message of bicycle helmet safety may not be effectively conveyed from parent to child.

From a pediatric perspective, most clinicians introduce the concept of bicycle safety (including helmet use) at the periodic well child visit, usually as soon as the child is able to ride a tricycle (two-and-a-half to three years of age). This establishes an early and a positive association between behaviors. Ideally, the helmet then becomes an integral component of the bike-riding experience and a lifelong personal safety habit is hopefully created. It is reasonable to assume that if helmet use begins at an early age, then there is less chance that any stigma or other negative connotation will be associated with that behavior (e.g. not "cool," etc.) as the youngster approaches adolescence. In my private practice, I also encourage patients to wear a safety helmet when riding a skateboard or while roller skating—ensuring maximum protection when the child is engaged in any activity in which they are propelled at an increased velocity along a hard surface and can potentially sustain head trauma.

As the authors point out, multifaceted education programs, although well conceived and intentioned, only transiently increase helmet use. The lack of sustained positive reinforcement—outside of the classroom and at home—eventually minimizes the initial intervention. This observation notwithstanding, it is still incumbent on our school systems, particularly at the primary grade levels, to foster bicycle helmet use as a fundamental facet of the basic health and safety curriculum.

Just as we teach our children to "look both ways before crossing the street," "never talk to strangers," and "stop, drop, and roll," bicycle helmet use could be incorporated into the cultural lexicon by using a simple and easily remembered slogan. Look how children of the current generation automatically buckle themselves into a seat belt immediately upon entering an automobile.

As recently as the early 1980s, few people actually used seat belts on a regular basis, although they were certainly standard equipment in all cars. To some it was "uncool"; to others, seat belt use was simply an annoyance. What happened during the past decade to alter this societal mind set? Informing the public about motor vehicle-related morbidity and mortality statistics had little impact. Scare tactics are rarely ever effective as catalysts for positive cultural change. The simple truth is that seat belt use became the law—and because the public was then compelled to adopt this behavior, seat belt use eventually became accepted and routine. It evolved, over time, into the cultural norm. It therefore seems reasonable to anticipate that legislation that statutorily mandates (and enforces!) bicycle helmet use will ultimately have the same positive behavioral effect so that in the future no child will consider riding a bicycle without first putting on a helmet. It may take a generation to accomplish, but the advantages in terms of injuries prevented and lives saved, will be immeasurable.

Finally, the authors contend that geographic proximity to a metropolitan area may influence the decision to wear a bicycle helmet. This association may be legitimate and deserves further study. It is likely a minor factor, however, in the definitive decision by a parent to require their child to employ this safety equipment. A more significant variable, I believe, is each parent's personal perspective, their familiarity with the issues. It is conceivable that some adults, irrespective of their level of education or sophistication, have never taken the time to consider the objective advantages of helmet use or, as importantly, to critically assess the risks and dangers to their child when not wearing a bicycle helmet. The development of an adult/parental education program to examine and address these issues—perhaps a multidisciplinary effort involving the school system, the media, and the medical establishment—offers a practical approach for bringing this information to the general public. The coordination of such a project will be a Herculean task, but the obvious benefits to society clearly warrant its consideration.

I commend Mr. Greer and Dr. Fields for this very worthwhile research and agree wholeheartedly that legislation requiring bicycle helmet use by all children in North Carolina offers the best and most expeditious means for developing this vital personal safety behavior among young people and for maximally protecting that segment of our population who are at the greatest risk for preventable head injury. □

# Health Watch

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## Living with Hypertension

### INTRODUCTION TO DEALING WITH ELEVATED BLOOD PRESSURE

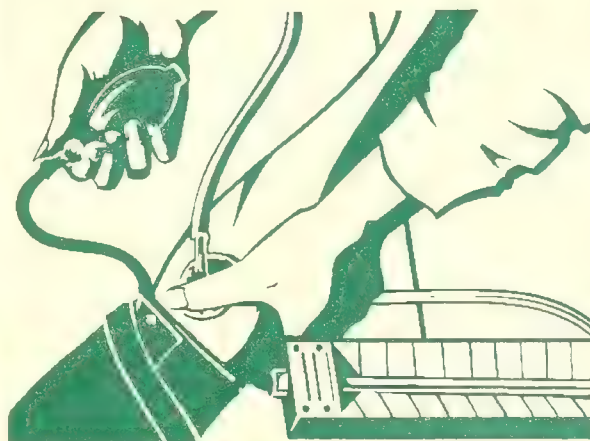
by John M. Flack, MD, MPH

Hypertension, or elevated blood pressure, is a very common condition for adult Americans. Unfortunately, there are a lot of myths about what hypertension is, as well as about whether hypertension causes symptoms. Another misconception about hypertension concerns whether systolic or diastolic blood pressure is more important. This brief overview about the condition will examine important issues facing individuals living with it. And, whenever possible, special issues for residents of the Southeastern United States will be highlighted.

#### What is Hypertension?

Hypertension is an abnormally high physical pressure inside the major blood vessels (arteries). Blood courses throughout

the arteries and releases life-sustaining oxygen to our vital organs (i.e., heart, brain, kidneys) and other body parts. There are a number of factors which can lead to elevated blood pressure, including increased blood vessel constriction (squeezing), abnormally high blood volume, reduced capacity of the blood vessel to stretch when blood is pumped through it, and/or an increased amount of blood being pumped



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by the heart. Hypertension is not, however, caused by nervousness or anxiety. A blood pressure of 120/80 millimeters of mercury or less is considered to be ideal. The first or top number (120) is the systolic blood pressure and the second, or bottom number (80), is the diastolic blood pressure. Systolic blood pressure repeatedly equal to or higher than 140 millimeters or diastolic blood pressure equal to or higher than 90 millimeters is considered to be hypertension.

## Why is Hypertension Important?

Hypertension is important because the level of both systolic and diastolic blood pressure predicts an individual's risk for ultimately experiencing blood pressure complications, such as stroke, kidney failure, heart failure, heart attack or myocardial infarction, peripheral vascular disease, and/or dementia. Although systolic and diastolic blood pressure are both important risk predictors, in relative terms, systolic blood pressure is more closely linked to the risk for hypertensive complications. Though not a well-known fact, individuals with hypertension experience a number of symptoms, such as weakness, fatigue, poor exercise tolerance, headache, sleep problems, and dizziness.

## Who is at Risk for Hypertension?

Over 50-million Americans have elevated blood pressure. On a percentage basis, African-Americans are at higher risk of developing hypertension than are either whites or Hispanics. Blood pressure levels increase with advancing age. In fact, among persons over 65 years of age, hypertension is more common than normal levels of blood pressure. Older persons tend to more often have elevations of systolic than diastolic blood pressure or combined elevations of both systolic and diastolic blood pressure. Individuals, both African-American and white, living in the Southeastern states, such as North Carolina, Alabama, and Georgia, have a greater risk of hypertension and its complications, such as stroke, kidney failure, and heart failure, than similar indi-



viduals living outside this geographic region. Men develop hypertension at younger ages than women, although at older ages a greater percentage of women have hypertension than men. The risk of hypertension is directly related to body size. That is, overweight individuals (particularly after rapid weight gain) are at increased risk of having elevated blood pressure. Diabetic persons also have hypertension more than nondiabetics.

## Do Certain Lifestyle Choices Lead to Hypertension?

### Sodium

Most Americans, especially those of us living in the Southeast, consume high levels of dietary sodium (salt). Most of us consume anywhere from 20 to 40 times the amount of sodium that we need for normal bodily functions. The majority of salt in the diet is "hidden," meaning that approximately 85% of the salt in our diet is processed into the foods before we ever see it; less than 10% is added during food preparation or at the table. Foods such as bacon, processed meats, soups, and canned goods are high in sodium. Some groups, such as older persons, diabetics, African-Americans, and overweight individuals, are at increased risk for being salt-sensitive. That is, when they consume sodium their blood pressure levels go up, and when they lower their salt intake their blood pressure falls.

### Physical Inactivity

A lack of physical activity also increases one's risk of hypertension. A low level of physical activity is a lifestyle choice that promotes obesity, which in turn also raises blood pressure. Aerobic physical activity lowers blood pressure and reduces an individual's risk of hypertension. Moreover, physical activity makes virtually all blood-pressure-lowering drugs work better. Hypertensive patients sometimes find it difficult to exercise, because they tire easily. Heavy weight lifting and isometric exercise can, however, raise blood-pressure levels. Hypertensive patients should favor aerobic activity and, when engaging in resistance training, should lift weight levels that are comfortable for high repetitions. Over one-half of all hypertensive individuals are salt-sensitive.

### Alcohol

Alcohol raises blood pressure in direct proportion to the amount consumed. Hypertensive patients do not need to avoid alcohol entirely. However, it is clearly advisable for them to consume, on-average, no more than the equivalent of two mixed drinks per day.

### Potassium

Low levels of dietary potassium consumption have been linked to hypertension, as well as to an increased risk of

stroke. There are also studies suggesting that higher levels of potassium intake help the kidney to excrete excess amounts of dietary sodium. Low serum potassium levels in individuals treated with diuretics are often attributable to high levels of dietary sodium intake. Persons living in the Southeast have the lowest intake of dietary potassium of any geographic region in the United States. African-Americans tend to have lower potassium intake than whites. Rich dietary sources of potassium include fruits and green leafy vegetables. Potassium supplements, however, should be avoided in individuals with abnormal kidney function, unless they are closely monitored by a physician.

### **Calcium**

Low levels of dietary calcium intake have been linked to an increased risk of hypertension. However, when calcium supplements have been given to individuals with elevated blood pressure, the blood-pressure-lowering effect has been disappointing. Dairy products are a major dietary source of calcium (and fat).

### **Smoking**

Over the long-term, smoking does not raise blood pressure. In fact, smokers tend to have slightly lower blood pressures than nonsmokers, mostly because of their lower body weight. However, when a cigarette is smoked, blood pressure increases by 10 to 20 millimeters of mercury. These repeated increases lead to damage to the major blood vessels that supply vital organs.

### **Stress**

It has not been proven that stress raises blood pressure over the long-term. However, it has been shown that acute stress leads to blood pressure elevations. Stress also causes the kidneys to hold onto salt and water that, under nonstressed conditions, would be excreted into the urine.

### **Miscellaneous**

A number of other minerals and dietary supplements have been suggested to either contribute to the development of hypertension or, when supplemented in the diet, to lower blood pressure. For example, supplementation with magnesium and garlic may lower blood pressure in selected individuals. However, neither is as powerful as currently available blood-pressure-lowering medications. Because of that, these supplements should not be viewed as a substitute for medications prescribed by a physician. Magnesium supplements should be avoided in individuals with abnormal kidney function, unless there is close physician monitoring.

## **Why Treat Hypertension?**

There is a lot of good information from clinical trials of hypertensive patients that proves the benefits of lowering blood pressure with antihypertensive drugs. The benefits are especially impressive for middle-aged and older hypertensive individuals. There are many benefits to hypertension treatment. These include a lower risk for pressure-related complications, such as stroke, heart failure, heart attack, kidney failure, and peripheral vascular disease. It does, however, take longer to attain these clinical benefits from drug treatment in younger hypertensives. A benefit of hypertension treatment that is seldom appreciated is that individuals feel better when their blood pressure is normalized. Indeed, it has been a long-standing myth, shared by both physicians and patients, that hypertension does not cause symptoms. In fact, numerous public service campaigns have labeled hypertension the "silent killer." However, symptoms known to be associated with elevated blood pressure which should lessen or disappear during hypertension treatment include headache, sleep disturbance, weakness, fatigue, lethargy, dizziness, chest pain, shortness of breath, and poor exercise tolerance. These symptoms can be caused by disorders other than hypertension, but among individuals with hypertension, these symptoms correlate with the blood-pressure level.

## **Hypertension Treatment: Staying the Course**

Keeping hypertensive individuals on their prescribed blood-pressure-lowering medications over the long-term is sometimes a major challenge. It is, perhaps, an even greater challenge to convince individuals with hypertension to change their lifestyle—reduce caloric intake (especially fat), exercise more, limit alcohol intake to two drinks per-day or less, and restrict dietary sodium intake to less than three grams per day—in such a way that will lower blood pressure and also increase the effectiveness of prescribed antihypertensive medications. Some studies have found that as many as 50% of hypertensive patients, who were initially started on blood-pressure-lowering medications, will stop taking their medication within the first year after it was initially prescribed. Additionally, of the hypertensive patients who take their blood-pressure medications over the long-term, only 60% take them as prescribed, likely taking less of the medication or taking it less frequently than they should.

The act of taking blood-pressure medication over the long-term is necessary for most hypertensive individuals to attain a normal blood-pressure level. When blood pressure is lowered, the risk of pressure-related complications, such as stroke, is reduced and persons feel better. Some of the reasons hypertensive persons do not take their medication include poor communication with their doctor, drug costs, and side effects.



## Why do Side Effects Occur During Hypertension Treatment?

Probably the most important cause of hypertensive patients stopping their blood pressure medication is their perception that the drug is causing side effects. It is important to, once again, realize that hypertensive individuals do experience symptoms. Only 25% of all hypertensives and only 45% of those on antihypertensive medication achieve normal blood-pressure levels. That is, a systolic blood pressure less than 140 and a diastolic blood pressure less than 90. Thus, most hypertensives who are taking medication have blood-pressure levels above the "normal" range.

Hypertensive individuals are prone to experience symptoms at several times during the course of treatment. Prior to beginning treatment, hypertensive individuals are at risk of experiencing symptoms because their blood-pressure levels are high. Hypertensive persons taking blood-pressure medications, who have not had their blood pressure normalized, may also experience symptoms because their blood pressure remains elevated. They may feel their symptoms are caused by the drug and not by their unimproved condition.

The best way to alleviate the symptoms is to control the blood pressure. This will require more, not less, medication, as well as a greater commitment to lifestyle changes. Unfortunately, when the drug(s) is wrongly blamed for these symptoms, it is usually stopped and another one is substituted. This results in the frustrating exercise of repeatedly switching medications in an effort to get rid of pressure-related symptoms. To make matters worse, when one medication is stopped and another one is started, the blood pressure often temporarily rises, leading to additional symptoms. Some individuals then want to restart their old medication. However, the new medication is usually not the cause, nor is restarting the old medication the solution. Both the patient and the physician need to be patient as these symptoms usually go away with time, assuming that the blood pressure can eventually normalize.

Hypertensive persons are also at risk for symptoms when drug treatment is first started or dosage increased. This is usually because of a relatively rapid drop in the blood pressure. Finally, blood-pressure-lowering drugs do cause some side effects. These side effects are sometimes very similar to the side effects experienced from high blood pressure itself. However, a good rule of thumb is that blood-pressure-lowering drugs get rid of far more side effects than they cause. Also, most side effects, experienced when drugs are first started or when medications are changed, usually go away within a few weeks to a couple of months after blood-pressure levels have returned to normal.

## Blood Pressure Lowering Drugs and Sexual Function

Blood-pressure-lowering drugs do frequently cause or aggravate sexual difficulties in men. There is also some suggestion that women treated with hypertensive medication may have more problems with sexual functioning than hypertensive women who are not taking medication; however, study results are not clear.

Among men, problems with sexual function are more common with older men. By age 60, at least one in five hypertensive men report problems with either getting or keeping an erection. These problems are more common in hypertensive men on drug treatment than in similar men not taking blood-pressure medication. Almost all antihypertensive medications can cause sexual function problems in men, at least for a short while. However, over the long term, the diuretics and the older blood-pressure medications cause more sexual dysfunction than the newer currently preferred medications. Interestingly, sexual problems spontaneously resolve themselves in over one-half of hypertensive men reporting sexual difficulties without any specific treatment or change in medication.

It is not uncommon for some men to stop taking their blood-pressure-lowering medications to avoid the potential short-term problems with sexual function. However, over the longer term, higher levels of blood pressure, particularly systolic blood pressure, are associated with poor sexual functioning in men. Other factors known to correlate with poor male sexual functioning in men include heavy alcohol intake, smoking, older age, and diabetes.

## Summary

Gaining control of hypertension requires a large effort on the part of not only the patient and physician, but other health care providers as well. Successful hypertension management is defined as lowering blood pressure to less than 140 millimeters of mercury systolic and less than 90 millimeters of mercury diastolic. If blood pressure is lowered gradually, one can expect to feel better. In most situations, there is no benefit in rapidly lowering blood pressure. The down side of rapid blood pressure lowering is that individuals tend to feel bad, at least temporarily, and are likely to discontinue medication. Patience is the key. It takes at least four to six weeks to achieve normal blood pressure when a new medication is started. Almost all of the blood-pressure medications work better when the individual makes lifestyle changes (loses weight, reduces salt and alcohol intake, and increases aerobic activity). □

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# Major Dysphagia

Jeff Drayer, MSIII

The history is crucial  
When you're assessing maws.  
Trouble with solids  
Implies a mechanical cause.

When obstruction's advanced,  
Liquids get stuck, too.  
Except with scleroderma,  
Standing won't relieve you.

And if solids and liquids both  
Get stuck from the start,  
Then it's motor dysphagia  
(Acute onset sets it apart).

If dysphagia is transient,  
It's an inflammatory affair;  
If it progresses over months,  
There's a carcinoma in there.

Now, episodic dysphagia,  
O'er many a year,  
Means a lower esophageal ring  
Just might be down here

Associated symptoms  
Provide important clues,  
So here is a handful  
That you may want to use:

Pharyngeal paralysis causes  
Nasal regurgitation  
And also the chance of  
Tracheobronchial aspiration,

But if aspiration without swallowing  
Is the patient's main symptom,  
Think achalasia, or reflux,  
Or Zenker's diverticulum.

With very severe weight loss,  
It's carcinoma you'll see.  
When hoarseness precedes dysphagia,  
The lesion in the larynx will be;

But hoarseness following dysphagia,  
Means recurrent laryngeal nerve—thus  
You know the tumor's extended  
Beyond the esophagus.

Hoarseness from laryngitis  
May mean gastric reflux;  
Unilateral wheezing from a mass  
On a bronchus—really bad luck.

Now chest pain with dysphagia  
Paints an esophagospasm picture;  
Heartburn and reflux preceding  
Dysphagia point to stricture.

Odynophagia means herpes  
Or candidal esophagitis;  
In the immunodeficient,  
Opportunistic infection's the nidus

The physical exam  
Can help pare down your list.  
Follow these instructions  
So the diagnosis won't be missed:

To start, motor dysphagia  
Has many accompanying signs to see—  
Like dysarthria, dysphonia,  
Ptosis, and tongue atrophy.

The neck should be examined  
Diligently, carefully,  
To look for spinal problems  
And detect thyromegaly.

*Mr. Drayer is a third-year medical student at Duke University School of Medicine, Durham*

Collagen-vascular diseases  
May cause changes in the skin  
And stenosis of mouth and pharynx  
That won't let food get in.

Large nodes or liver symptoms  
Could signal metastases;  
And some pemphigoid bullae  
Mean mucocutaneous disease.

Are diagnostic procedures  
Quite helpful or not,  
Since esophageal lesions  
Can be pretty hard to spot?

Barium swallow is usually  
The right initial test  
To find motor or struct'ral causes  
It's still the best.  
Stasis in the pharynx  
Implies the motor system's not well  
And reflux from the stomach  
Is easy to tell.

Double-contrast x-rays  
Both ulcers and cancer show.  
To examine peristalsis  
Recumbency is the way to go.

Endoscopy is the perfect method  
Of establishing mechanical cause  
As well as mucosal lesions  
(Because barium does have some flaws).

Another endoscopic advantage  
Is the collection of biopsies  
To diagnose reflux esophagitis,  
Carcinoma, and mucosal disease.

A final useful measure  
Is your basic contrast CT  
It can find metastatic cancer  
And delineate anatomy.

Next time you work up someone  
Who can't swallow, you'd be prudent  
To remember this little poem  
Written by a medical student. □



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## *Patient's Point of View*

# *A Fine Day for the Dentist's Chair Pulling With Mozart*

*By Jan Smith, of Anna Maria, Florida. Ms. Smith attended the first annual conference on integrating mind, body, and spirit in medical practice held last October at Duke University Medical Center, Durham*

"This is a great day for an extraction!" I spoke these words when I awakened on Tuesday morning, December 3, 1996.

One month earlier, while eating supper, I broke the gold crown in the back upper left molar, tooth number 15 to be precise. A simple matter to cement it back—except that I broke off over half the already "too compromised" tooth.

The next morning I was in the dentist's office. "The tooth has to come out" was the final verdict after three dentists had conferred. Because only a stub of a tooth was left, I was warned by the oral surgeon that he couldn't get a good grip to pull and would be cutting a lot of gum. Possibly there would be bone loss, even puncture of the maxillary sinus, as I could see on the x-ray. Not very reassuring news for someone as fearful of pain (especially dentist pain!) as I am.

Surgery was scheduled for December 3, a month away but the first date the surgeon had open. It gave me time to start mourning the loss of my first permanent tooth.



When the doctor entered the operatory, I smiled and repeated my new mantra. "It's a great day for an extraction!"

Somber silence. Then he murmured, "Well, I don't know about that."

"Wrong answer! It *is* a great day for an extraction!"

I asked him if he would play the CD I had brought with me: Mozart's Piano Concertos, beginning with No. 18 in B-flat major. He agreed. Then he asked if I wanted the IV drip of Valium that he encouraged patients to take in addition to the xylocaine. I declined the relaxant.

I was hooked up to a blood pressure monitor, so I asked

what my pressure was. When the assistant said "156/88," I asked her if she would tell me the pressure each time she measured it. As the anesthetic began its numbing, I began to visualize the blood pressure numbers going down. I began to visualize my tooth (what was left of it) sliding out as easily as a hot knife slides out of soft butter.

The doctor was ready to begin. He said he'd start by trying to pull the stub out in one piece, but expected that he would have to do much more extensive surgery. He cut my gum—I felt it, but didn't flinch. I just kept visualizing that piece of a tooth slipping out easily, smoothly, over and over and over. I was breathing evenly and deeply, picturing my blood pressure numbers sliding down, down, down. I noticed how beautiful the Mozart was.

Then I felt pressure. The tooth came out in two pieces. No extensive surgery! The surgeon said there was minimal bleeding and "things look so good" that I wouldn't even have to return for any follow-up. My blood pressure at that moment was 130/72 and the Piano Concerto No. 18 was over and the Concerto No. 20 in D minor was just beginning. I felt good and happy and relieved that it was over. My first extraction and the easiest trip to the dentist ever!

Even the surgeon was smiling as he handed me a prescription for a painkiller. I took one pill two hours later and another four hours later. Nothing else. This surprised even me because all my life I have had an exceedingly low pain threshold.



It really was an absolutely beautiful day for an extraction. □

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## Physician's Point of View

# A Fine Day for the Administrator's Chair

## Healing With Mind-Body-Spirit Medicine

*Editor's note: We asked Larry Burk, MD, Associate Professor, Duke Department of Radiology, Faculty Coordinator, Mind-Body Medicine Study Group, and certified Anodyne Imagery practitioner, to comment on Jan Smith's article (preceding page). It stimulated the reflection on parallels in his own life printed here.*

This is a great day for managed care!" I spoke these words when I awakened on Friday morning, October 4, 1996.

Months earlier, while trying to digest the changes swirling in health care, physicians at Duke Medical Center felt their spirits break, felt disempowered to be precise. It seemed a simple matter—learn to survive a few layoffs—except that we had long ago given up most of our power to technology.

The next thing I knew we were in the administrator's office. "You will have to give up the rest of your power" was the final verdict after three HMOs had conferred. We had so little power left that the administrator warned us he couldn't get a grip on the financial situation and would be cutting our allotted time with patients. Possibly there would be compassion loss, even rupture of the doctor-patient relationship, as we could see. Not very reassuring news for doctors as fearful of the business world (especially MBAs) as we are.

A CME meeting that would help us cope with the managed care environment was scheduled for October 4. It was many years delayed and had required a crisis of quality to bring it about. Frustration with the health care system was so high that patients were starting to perceive the need to take responsibility for their own health instead of waiting in line for us to do it.



When the MBA entered the conference, we smiled and repeated our new mantra, "It is a great day for managed care."

Somber silence. Then he murmured, "Well, I don't know about that."

"Wrong answer! It is a great day for managed care."

We asked him if he would reserve judgment while we undertook the first annual "Integrating Mind, Body and Spirit in Medical Practice" conference [eventually attended by 400 physicians, nurses, psychotherapists and laypersons—including Jan Smith, author of the preceding article]. He agreed. Then he asked if we wanted an infusion of pharmaceutical money that he encouraged physicians to take in addition to the rewards of

caring for patients. We declined the offer.

Physician and patient satisfaction were at an all-time low. We asked for more feedback later. As the conference began—with an introduction by the Chancellor of the Medical Center and a presentation about a mindfulness meditation educational program intended to empower patients—we began to visualize the satisfaction ratings going up. We began to visualize physicians reclaiming their power to help people heal themselves.

We were ready to begin. We would start by trying a breakout session devoted to Anodyne Imagery—a synthesis of hypnosis, relaxation techniques, and communications skills—that could change our approach to patients, but expected that we would have to do much more extensive revitalization. Using this technique, our patients can be awake during procedures, but more comfortable because they are capable of mustering their own inner resources [described so well by Ms. Smith]. We just kept visualizing a more spiritual approach to medical practice over and over and over. We were breathing evenly and deeply, picturing the satisfaction levels riding up, up, up. How beautiful that picture was.

Then we felt transformation. The power came back in two pieces: one for the doctors and one for the patients. No extensive bureaucratization. Conference attendees thought that "things looked so good" that we wouldn't have to return for followup until the fall of '97. Satisfaction ratings were excellent; the first conference was over and the next one\* was just beginning to be planned. We felt good and happy and relieved. Our first conference and the highest CME ratings ever.

Even the administrator was smiling as he arranged funding for future programs. We took some support to get started and a little bit more later. Nothing else. Surprising because we have always had an exceedingly low threshold for spending other people's money on technology.



It really was an absolutely beautiful day for managed care. □

\* *Editor's note:* The 2nd Integrating Mind, Body, and Spirit in Medical Practice Conference will be held October 30-November 1 at the Sheraton Imperial Hotel, Research Triangle Park. Call 919/684-4293 or <http://www.mc.duke.edu/nursing/nshomepg.htm>



# Health Care in Ancient Rome

## Lessons for Doctors Today

Richard D. Callahan, MD

What might we learn from ancient practitioners of the medical arts? Are there parallels between their practices and ours today?

In the transition from Roman Republic to the Roman Empire just before the birth of Christ, cosmopolitan Romans turned to the Greeks for medical expertise. Pliny the Elder, who lived in 1st century Rome at a time when Greek physicians abounded there, noted that Romans had gotten along without doctors for 600 years. Families were treated by the head of the household, the *paterfamilias*, who combined domestic herbal medicine with superstitious rites and religious observances. And there was a household god to serve just about every disease or physiologic function.

Although Greek physicians were abundant, they were despised as mercenaries for accepting compensation for health care services. This was especially the opinion of ultraconservative Roman traditionalists such as Cato the Censor (234-149 B.C.) who felt competent to take care of his own household using "pragmatic Roman methods"—primarily medicinal herbs, cabbage, and wine accompanied by magic formulas and incantations. Pliny the Elder later remarked that Cato's medicine was "ancient and unsophisticated," but it "must have worked at least for Cato himself since he lived to be 85 years old."<sup>1</sup> Modern medicine still faces similar challenges from alternative care practitioners and to some extent chiropractors.

### Greek Physicians for Rome

According to Pliny, the first Greek physician to practice in Rome was Archagathus in 219 B.C. He must have been successful, at least at first, because the Romans paid the expense of setting up his practice and granted him citizenship, but the later horrors of his surgical and cauterizing methods earned him the epithet *Carniflex* (the Executioner). As an oncology practitioner in a small western North Carolina community, I might get to be known as "Callahan the Poisoner" if I did not take pains

to limit the toxicity of the palliative chemotherapy given at my office.

Pliny (23-79 A.D.) may have had an ax to grind when he wrote of Greek physicians in his extensive *Natural History*.<sup>2</sup> His diatribe against "Medicine and Quackery" points to the lasting truth that patients can be seduced by those who profess to have "cures" for whatever ails them or threatens their lives. We certainly see this today. A good example from my field of cancer medicine was the excitement over laetrile as a "cure for cancer" in the 1980s.

Another Greek physician, Asclepiades of Bithynia (120-70 B.C.), provided an important impetus to the acceptance of Greek medical ideas in Rome. He was influenced by the teachings of Erasistratus, a 3rd century B.C. Alexandrian-Greek physician, who believed the body to be comprised of atoms that depended on a life-force or *pneuma* derived the circulation of inspired air through the arteries.<sup>3</sup> Erasistratus came close to correctly deducing the pumping action of the heart and the pulmonary circulation, something that was not fully worked out until the time of William Harvey in 17th century England. In fact, Erasistratus provided an amazingly accurate synthesis even though he could not have known of the transport of air into the blood via the lungs or the transport of life-sustaining oxygen to the body through arterial circulation.

The Greek physician Hippocrates had laid the foundations of modern medicine—critical observation, honest evaluation, diagnosis, prognosis, and the ethics of medical practice—but his physiological theory of the "four humors" (blood, phlegm, black bile, yellow bile) was off the mark. Asclepiades rejected the idea of the four humors in favor of a practical approach to medicine. He sought to treat patients "*tuto, celeriter ac jucunde*" (safely, quickly, and pleasantly), using diet, exercise, massage, soothing medications such as opium or wine, and hygienic measures. His common-sense, humanistic approach to patient care would have made him an excellent present-day practitioner. His guiding principle was to avoid drastic or weakening procedures whenever possible. This sensible approach, his winning personality, and his reputation for caring improved the

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standing of Greek physicians in Rome. Asclepiades was probably a friend Cicero's, and his influence may well have led Julius Caesar to grant citizenship to all medical practitioners resident in Rome in the hope that they might be induced to remain.<sup>4</sup>

The medical encyclopedist Aurelius Cornelius Celsus promulgated the good-sense methods of Asclepiades. Unfortunately his writings were not given much credence because they were rendered in Latin rather than in Greek, the accepted language of science and medicine. On the heels of Celsus came Pliny the Elder who railed against Greek physicians and quackery—then proceeded to recommend a concoction of cat's dung and owl's toe for quartan fever (malaria).<sup>5</sup> Unfortunately Pliny's work, especially his specific remedies (as foolish as they seem now) for a wide variety of ills, was accepted as authoritative throughout the Middle Ages.

## Keeping the Bad, Discarding the Good

Perhaps the most severe setback to rational medicine came at the hands of the Greek physician, Galen of Pergamum (c. 129-200 A.D.). Galen had an answer for everything, and the good fortune of initial successes helped build his reputation and his practice in Rome. Pervading his writings was a dogmatism and sense of infallibility, which was appealing for centuries to come. To their discredit, the physicians who followed Galen accepted his ideas without serious challenge. As a result, little original thinking occurred in European medicine for almost 14 centuries.

Galen did maintain the sensible, gentle treatments that Hippocrates and others had suggested to help nature in its healing, but he also promoted the large-scale use of medications of no proven effectiveness. He prepared his own concoctions, including a "cure-all" potion containing more than 70 ingredients ("theriac"). He dismissed the work of Asclepiades and Erastitratius and revived the Hippocratic theory of the four humors, using it to justify bloodletting on a frequent basis. Galen did recommend caution in the amount of blood removed, but his advice was not always followed by generations of medieval physicians who thought "if a little is good, a lot must be better." Those same practitioners increased the number of items in the formulation of theriac to more than 100 (possibly the only active one of which was opium). Established dogma in medical practice was slow to change then; it is slow to change now as well. Consider the continued use of Dr. Halsted's 100-year old ideas about radical mastectomy for breast cancer.

Greco-Roman medicine should not be blamed unjustly for the bad ideas that persisted through the dark ages of medical and scientific ignorance in Europe. The problem was that Europeans accepted those tenets of Greco-Roman medicine that suited them. The idea of giving as little medication as possible was rejected in favor of doing "something," giving any concoction that authorities like Pliny or Galen *said* would work. Many of our patients today still believe in "a pill for every ill." I see this

almost daily in my oncology practice where the most difficult thing to explain is the lack of effective treatment for many kinds of advanced cancer. Even after an extensive discussion of how, in a particular situation, the data show no proven benefit for chemotherapy, many patients and their family members still want to try "something."

## The Romans as Sanitary Engineers

Probably the most notable Roman contribution to health care was in architectural engineering, particularly in the area of water supply. In an era when infectious disease was the greatest threat to health, and no antibiotic therapy was available, cleanliness was the best preventive medicine. It appears that the Romans may have learned how to build sewers and drain swamps from the Etruscans because, ever adept at adopting and adapting the ideas and practices of other peoples, the Romans learned much of their health practices from the Etruscans. With a practical wisdom that explains much of their greatness, the Romans recognized the association of disease with areas of standing water. Marcus Varro, writing in the first century B.C., showed an awareness of microorganisms which predates the germ theory of disease by almost 2,000 years: "*Precautions must be taken in the neighborhood of swamps...because there are bred certain minute creatures which cannot be seen with the eyes, but which float through the air and enter the body through the mouth and the nose...to cause serious illness.*"<sup>6</sup> These ideas were apparently accepted as common practice despite the fact that no one could actually see these presumed microorganisms. The Romans built well-ventilated houses, provided sewers for their cities, drained swampy land, and brought incredible amounts of clean water over long distances to supply their people. By the 4th century A.D., Rome had 11 large public bath houses, hundreds of smaller baths, and more than 1,350 public fountains supplying clean, running water from 13 aqueducts. The per capita water consumption of ancient Rome has been estimated to be four times what the average American uses today.<sup>7</sup>

Despite the attention to hygiene, Rome did suffer from pestilence. According to historian William McNeil, Livy recorded at least 11 disastrous epidemics during the Roman Republic. The epidemic of 65 A.D. was followed by what may have been the first appearance of smallpox and measles in the Antonine plague of 165-180 A.D. and the devastating plague of the mid-3rd century A.D. Not even the best provisions for personal and public hygiene can avert the scourge of a new virus unleashed on a nonimmune population.

Preserving the Roman expertise in sanitary engineering might have saved many thousands of lives during subsequent European and American wars. By observing Roman sanitary precautions, a large number of Crimean War and American Civil War deaths could have been prevented. Vegetius wrote of general health practices in the Roman army: "*[I]n regards to the placement of camps, soldiers must not remain too long near*



the locations of unhealthy marshes...nor must they use swamp water for drinking purposes...[I]f a number of soldiers are allowed to stay in one location too long in the summer or the autumn, they suffer from corruption of the water supply...and grave disease afflicts them...[T]his must be corrected by moving to another camp site."<sup>8</sup>

It is a tribute to the practical wisdom of the Romans that they could plan, design, and implement ways to circumvent bacterial diseases like cholera, dysentery, and typhoid even though there was no science or understanding of bacteriology. Of course, many Romans did succumb to malaria despite the draining of swamps, and they could not avoid the ravages of tuberculosis or the viral onslaughts of influenza, smallpox, and measles. But attention to sanitation did more to promote better health than the most gifted or educated physicians using medicaments. Unfortunately, the Roman health care ideas that lasted were the concoctions of Galen and the practice of bloodletting, not the sanitation practices.

## Ancient Lessons for Modern Medicine

Hippocrates has been credited as saying: "To know is one thing; merely to believe one knows is another. To know is science; merely to believe one knows is ignorance."<sup>9</sup> Unfortunately, although Galen "merely believed," he found many willing followers. Only careful observation and the truthful recording of medical data can lead to the logical, unbiased conclusions that form the basis of the best medical practice. This philosophy can be traced back to Greco-Roman medicine, but science got sidetracked by popular demand for treatment and panaceas. The same popular pressure today asks us to find "a cure for cancer." We need to remember that, although we consider ourselves "modern" in thought and practice, medical historians of the not-too-distant future may view our efforts as little better than Galen's. Treating cancer with nonspecific cytotoxins or indiscriminate cell-killing chemicals may come to be considered just as barbaric as bloodletting. We can chuckle at "theriac" while

calculating "precise" doses for the eight drugs that make up ProMACE-CytaBOM chemotherapy for lymphoma. Future physicians may wonder why in the world we base our calculations on the skin surface area of our patient's body.

Perhaps modern medicine is not as advanced as we would like to think. The Romans of Varro's time may have accepted the idea of airborne "animalcula" more readily than doctors today have accepted the role of bacteria in peptic ulcer disease. The bland ulcer diets of the 1950s were no more effective than "owl's toe" for malaria.

With a thought to historical perspective, I often tell patients that the chemotherapy I recommend is the "best we know at this time." Unrealistic expectations contribute to the costs of medical care, and highly touted improvements lead many to expect answers when there are none. When chemotherapy cures a subset of patients (say those with hairy cell leukemia), the media hype fails to mention that this is a small proportion of all cancer cases, and that not all cancers are the same.

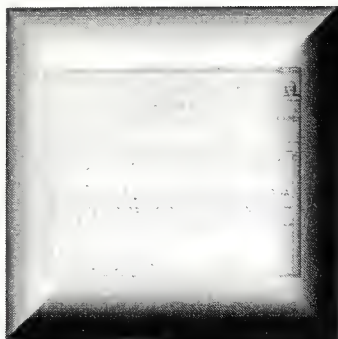
It is easy to understand how Galen's fame spread—his first patients "responded" to his cures. Success led him to write down his formulas with confidence in their efficacy. If they "worked" for some patients, shouldn't they work for all? Galen's theriac strikes me as little different from the *Brompton's Solution* used in recent decades for hospice care of end-stage cancer. Near the end of his life and suffering terribly from severe coughing spasms, Sir William Osler wrote "Shunt the whole pharmacopoeia, except opium. It alone...does the job."<sup>10</sup> This was in 1919, and the pharmacopoeia had improved little over the 18 centuries since Galen.

In medical oncology we often are asked to give therapy even though there is no known or proven effective treatment. Patients want to try "something" just as they did in Galen's time. So I am slow to judge our ancient forebears harshly for treatments using cat dung. At least those treatments were less expensive and less toxic than chemotherapy for prostate cancer, pancreatic cancer, or melanoma for which we still need the technique of critical observation and honest evaluation introduced by Hippocrates. □

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# United Medical Research Foundation

## A Brief Chapter in the History of North Carolina Medicine

Eben Alexander, Jr., MD

The United Medical Research Foundation began in 1955 and lasted approximately 10 years. It was an important event in the Carolinas, but one that has been largely forgotten.

The Foundation could not have been conceptualized, much less implemented, had not a group of community leaders from North and South Carolina formed the Carolinas United Organization in 1951. As William Pryor of Greensboro (chairman in 1955-56) pointed out, the "Fifth Annual Meeting of *Carolinas United* [marked] a significant milestone in the development in progress of our two state organizations, for [it gave] all concerned a chance to take stock where we have been—where we are now—and where we want to go in the future."

Carolinas United arose out of the need in both Carolinas for bringing order to the chaos of multiple campaigns soliciting support for voluntary health and welfare services. It was hoped that federation would bring better planning and more adequate services to Carolina communities. Three ways were proposed to achieve these ends: 1) Encourage organized communities to seek federation with state and national as well as local agencies. 2) Create mechanisms to achieve federation in unorganized communities. 3) Help local communities in their relationships with state and national agencies.

### A Unified Approach to Funding

It is important to recall the circumstances surrounding the funding of health services and research in the first half of this century. The first director of the National Institute of Health, Dr. Pierce Bailey, Jr., said: "Before the close of World War II, large private endowments for the promotion of medical research and medical programs were dwindling to a trickle in the

light of increased taxes and fears of inflation. These individual endowments were superseded by the creation of large foundations aimed at broad health and social goals. The postbellum growth of voluntary health agencies was dedicated to the conquest of categorical diseases. These voluntary groups were made up mostly of patients already afflicted or threatened or of members of their families and their friends. They devised ingenious methods of fundraising through door-to-door subscriptions, public relations, displays, and competitions on radio and television. They enjoyed tax exemption.

Soon the idea developed that another effective way to raise research funds in large amounts was for citizens groups to plead before Congress to establish and appropriate funds to Federal Research Institutes at National Institutes of Health for the scientific investigation of disease problems with which they were concerned."

Faced with a growing need for funds for basic health, welfare, and recreational services, and at the same time frustrated about the waste of multiple campaigns, community leaders undertook a planned approach to meeting these needs. It made sense to underwrite local programs through a state level federation and to encourage local communities to work together in a program of joint action. Thus was born Carolinas United. It provided great return for its costs. Its treasurer, Joe H. Robertson, wrote in 1956: "Carolinas United is a service organization of local united community funds in North and South Carolina and provides [them with] basic services...including community organization services, agency financing service, information education, and planning and research. In 1956 the administrative budget of Carolinas United...[was] \$81,325, and during that time Carolinas United raised \$8,757,224."

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## The Foundation is Formed

The money which Carolinas United collected for research led to the organization of the United Medical Research Foundation in spring 1955. The 25 participating North and South Carolina communities agreed to create a statewide medical research facility. The purpose of the Foundation was to provide funds for research into poliomyelitis, tuberculosis, heart disease, cancer, and other diseases that cripple children and adults. (It's worth noting that national health agencies devoted to heart disease, cancer, polio, and tuberculosis ran their own national campaigns independently of any united funds; they refused to accept the funds raised in any community project).

The novelty of such a foundation generated considerable national interest, and newspapers in Peoria, IL, Waterbury, CT, Denver, CO, and elsewhere noted the launching of the Foundation. The *North Carolina Medical Journal* offered strong approval, and there was extensive coverage and editorial approbation from the *Durham Morning Herald* and *Winston-Salem Journal*.

The United Medical Research Foundation had a Board of Directors, consisting of two representatives appointed by the participating community organizations and members-at-large appointed by the Board. An Executive Committee, consisting of officers plus six other Board members, supervised the business of the Foundation and acted for the Board between Board meetings. The first president of the Foundation was Dr. James. H. Semans of Duke University. After he relinquished the chair, it shifted to Dr. Eben Alexander, Jr., of the Bowman Gray School of Medicine, and then to Dr. Nathan Womack at the University of North Carolina.

An essential part of the Foundation's operating structure was a Research Advisory Committee comprised of the deans of the medical schools at the University of North Carolina, Duke, and Bowman Gray. The Research Advisory Committee reviewed and investigated all requests for research funds as well as proposing research projects. The Foundation's guiding principle was that physicians doing research needed and could use all funds made available to them, that any money made available for specific pilot projects would be helpful in furthering research and attracting more funds from national organizations.

Each of the three medical schools established a Research Advisory Committee to approve grants, allocate funds, and report to the school's dean annually. On April 10, 1956, Dr. Coy C. Carpenter, dean of Bowman Gray medical school, sent a memorandum stating that "United Medical Research Foundation...funds may be made available for research during the coming year. Dr. James H. Semans...particularly emphasized the need for detailed accounting of proposed expenditures for items of supply, furniture, and the like. [P]lease see that the

information concerning your department is revised and turned into this office...[so] that we may collate it and present it to the Foundation."

In 1958, each medical school was allotted \$30,000, to be administered by the Research Committee in that institution. At Bowman Gray these funds were called the Fluid Research Fund. Since few private practitioners made requests, money went largely to the three North Carolina medical schools for allocation. Dr. Carpenter said: "Support from the United Medical Research Foundation has proven to be a unique and vital asset to the total research program of the Bowman Gray School of Medicine. [Especially important is] the flexibility which is allowed in the use of funds and their administration by the Dean and his intramural committee of established scientists with intimate knowledge of the applicant and research facilities available. These funds are now our only means of backing promising, unproven ideas in meeting emergency and unanticipated needs of research projects. As such, the United Medical Research Foundation grants have played a very essential part in the growth and stimulation of research in our institution."

## Allocation of Funds

The need for research support was as great as always, but funds in general were much less available than at present. Dr. Carpen-

ter pointed out that the "funds available to the Foundation are small as compared to those of national foundations. Accordingly, grants awarded by the Foundation can rarely be large. Although no rigid policy has been adopted, applicants applications for sums not exceeding

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"Looking back, it is hard to escape the conclusion that the United Medical Research Foundation was a courageous and perceptive project for its time."

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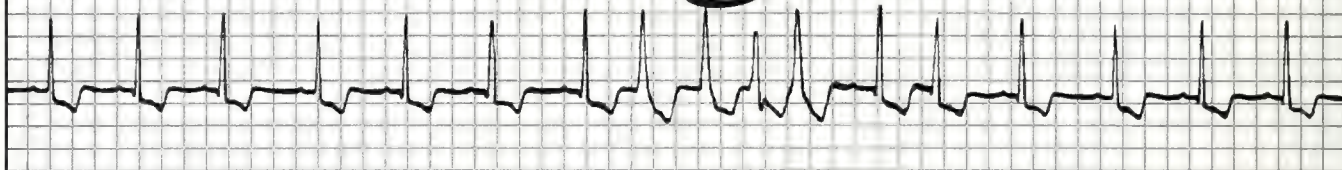
\$1,500 will be accorded preference. Upon termination of a grant, each grantee is expected to furnish the Executive Director of the Foundation a report describing progress in the investigation supported, and an accounting of expenditures. Unless the term is extended by the Foundation, the unexpended balance is to be returned to the Foundation."

In 1965 it was decided to allocate the primary use of Foundation funds for initial research support for new faculty members, pilot projects, the continuation of research when other grants had terminated, and obtaining equipment for which no other funds are available.

Looking back, it is hard to escape the conclusion that the United Medical Research Foundation was a courageous and perceptive project for its time. Now its time has passed, and the National Institutes of Health and other fundraising organizations have taken over the granting of funds to important projects. But over its 10 years of life the Foundation raised and disbursed about \$1 million. Its usefulness has passed, but this brief account honors its beginning and its modest but important contributions to the progress of medicine in North Carolina. □



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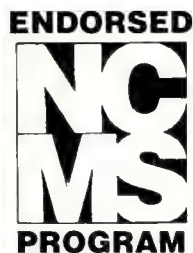
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# Bronchoscopic Evaluation of Pediatric Airway Pathology

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Bronchoscopy is a sophisticated, advanced, and accurate method of diagnosing pediatric airway disease. Both flexible and rigid bronchoscopes offer advantages in diagnosis and management, but each can miss potentially important information. Sometimes one needs to be used in conjunction with the other, but in most cases knowledge of the most likely diagnosis allows the appropriate first choice of a rigid or flexible instrument.

For many years, only rigid bronchoscopy was available for visualization of the upper airway. Introduction of the flexible bronchoscope in 1969 allowed safe evaluation of the airway during dynamic breathing in adults.<sup>1</sup> In 1978, a smaller bronchoscope was developed for use in children. Since that time, bronchoscopic evaluation under controlled conditions and in skilled hands has become the standard method of diagnosing upper airway disease in children.

The suspected site of abnormality can often direct the choice between rigid or flexible bronchoscopy in a given patient. The evaluation of upper airway disease certainly differs from lower airway disease, and the need for dynamic breathing during the procedure will play a role in decisionmaking. We review here the instruments and techniques of rigid and flexible bronchoscopy and list the advantages and disadvantages of each procedure (Table 1, at right).

## Rigid Bronchoscopy

Rigid bronchoscopy means placing a rigid, open tube into the airway through the mouth or through a tracheostoma. The scope consists of a surgical steel tube with ventilating side ports at the distal tip to allow for ventilation during the procedure. The proximal end of the scope has four ports: one for a glass prism that supplies a light source,

one to allow passage of suction or biopsy instruments, one for attachment of ventilation equipment, and one for passage of instruments (including rigid, glass-rod telescopes with or without endoscopic attachments) into the airway. Figure 1, next page, shows a foreign body forceps with the Hopkins rod. Telescopes are available with straight or angulated lenses to evaluate different segments of the tracheo-bronchial tree. Video equipment allows viewing on a television screen during the procedure.

Rigid bronchoscopy is usually performed under general anesthesia in the operating room. The bronchoscope itself is used as the ventilating instrument. The side ports above the distal tip allow the operator to advance the bronchoscope into a mainstem bronchus while still ventilating the opposite lung. These bronchoscopes come in sizes ranging from 2.5 mm to 10 mm.<sup>2</sup> Since the size designates the inner diameter of the bron-

**Table 1. Comparison of rigid and flexible bronchoscopy**

### Advantages of rigid bronchoscopy:

- Better control of airway
- Better visualization with glass rod telescopes
- Better tissue manipulation
- Less expensive
- Better for removal of foreign bodies

### Disadvantages of rigid bronchoscopy:

- Assessment of distal airway is limited due to size of scope
- Does not allow dynamic assessment

### Advantages of flexible bronchoscopy:

- Better dynamic view of airway
- Easier to use in intubated child through endotracheal tube
- Therapeutic use for cultures, washings, and biopsies
- Better view of distal airway and take-off segments

### Disadvantages of flexible bronchoscopy:

- Not for removal of foreign bodies
- Does not allow total airway control
- Requires bronchoscopist to administer anesthetic agent

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choscope, a 3.0 mm bronchoscope can only be used in an airway able to accommodate an instrument that is 4.0 mm-4.5 mm in external diameter.

## Flexible Bronchoscopy

The flexible bronchoscope consists of small bundles of glass filaments that transport light and image. The bronchoscope is not solid but houses a small open port for passage of flexible instruments, suction devices, and administration of oxygen, water, or other liquids. This port does *not* allow ventilation adequate to sustain life, therefore the child must be able to breath around the bronchoscope. The distal tip of the flexible scope can be angulated, allowing examination of "take-off" segments of the airway. Video equipment is available for viewing and recording purposes. The standard pediatric bronchoscope has a 3.5 mm-3.7 mm outer diameter and a 1.2 mm diameter suction channel. Ultrathin bronchoscopes, as small as 1.8 mm in outer diameter, have been developed, but lack a side port for passage of instruments.<sup>3-5</sup> Flexible bronchoscopy is usually performed using intravenous sedation and topical anesthesia. Meperidine (1-3 mg/kg) is used for sedation in children over one to two months of age who weigh more than 2.5 kg; younger and smaller infants are not given sedation.<sup>6</sup> Topical nasal decongestion and anesthesia is achieved by placing drops of a phenylephrine/lidocaine solution in each nostril. The bronchoscope is then passed transnasally into the airway with examination of the nasopharynx and larynx during passage.

The flexible bronchoscope can be passed through an endotracheal tube or through a tracheostoma. With only sedation and topical anesthesia, the airway can be examined while the child breathes spontaneously, thus providing dynamic assessment. Blood oxygen saturation is monitored throughout the procedure and intubation equipment is available for emergency use if needed.

## Advantages of Rigid Bronchoscopy

The design of the rigid bronchoscope allows control of the airway because ventilation occurs through the scope. The view through the rigid glass rod telescope is better than through the flexible scope. The rigid bronchoscope can be used to manipulate tissues within the airway to better evaluate small crevices such as the interarytenoid region (searching for posterior laryngeal clefts and tracheoesophageal fistulae). Rigid scopes are easier to maintain and clean, and are intrinsically less expensive and less easily damaged. The glass rod telescope and instruments such as foreign body forceps significantly increase the cost. Rigid bronchoscopes are superior for biopsying lesions within the major airways because the operator can directly visualize the lesion while controlling the airway should bleeding or pneumothorax occur. Finally, perhaps the greatest therapeutic use of rigid scopes is in the removal of foreign bodies. Forceps that carry the rigid glass rod telescopes significantly improve the rate of successful foreign body removal. In addition, use of the telescopes with video viewing facilitates the teaching of future bronchoscopists and provides documentation purposes for repeated procedures.



**Fig 1:** Foreign body forceps with the Hopkins rod used in rigid bronchoscopy.

## Advantages of Flexible Bronchoscopy

The greatest advantage of flexible bronchoscopy is in diagnosis. Because the flexible scope can be used while the child is breathing, a dynamic assessment of the airway can be made. This is crucial in diagnosing laryngo- or tracheomalacia or vocal cord paralysis. Without a dynamic view, the collapsing airway cannot be witnessed. Flexible bronchoscopes can be used in intubated children, and if necessary at the bedside.<sup>7,8</sup> Therapeutic uses of the flexible scope include removal of mucous plugs, and tracheobronchial cultures, washings, and biopsies (if the side port allows passage of flexible biopsy forceps).

## Disadvantages of Rigid Bronchoscopy

Rigid bronchoscopes are especially good for therapeutic procedures, but have some diagnostic limitations. Because the procedure is carried out under general anesthesia, a dynamic study with the patient breathing spontaneously is difficult. Also, the frequently needed positive pressure ventilation inflates the airway, preventing the diagnoses of tracheo- and bronchomalacia.

Examination of the distal airway is limited by the length and rigidity of the bronchoscope. As a result, problems in the distal airways may be missed.



## Disadvantages of Flexible Bronchoscopy

In contrast to rigid bronchoscopy, flexible bronchoscopy is a better diagnostic tool than a therapeutic one. Although removal of foreign bodies has been proposed by some authors, the rigid scope remains the instrument of choice for this purpose.<sup>9,10</sup> The flexible scope does not allow total control of the airway; in fact, the scope itself occupies space within the trachea and glottis and can cause or worsen obstruction. It is mandatory, therefore, that intubation or rigid bronchoscopy equipment be available in case of airway emergency. Endotracheal tubes can be passed over a flexible bronchoscope if necessary.

Because flexible bronchoscopy is usually not performed in the operating room, anesthesiologists are not usually present. The bronchoscopist then must be able to administer anesthetic agents and deal with adverse reactions should they occur.

## Integrated Patient Care

An integrated approach to patient care, using both flexible and rigid bronchoscopy as needed, is the ideal way of dealing with difficult cases. Table 2, below, shows an algorithm of evaluation and intervention. If there is a history of possible foreign body inhalation, then rigid bronchoscopy is recommended. Flexible bronchoscopy is an option for patients who do not report possible foreign body aspiration. Attempts at removing foreign bodies with embolization catheters without adequate control of the airway are to be condemned.

## Illustrative Cases

**Case 1:** A 10-month-old boy was brought to the pediatric screening clinic by his parents and grandparents. The parents had noted "noisy breathing" after a choking spell approximately 36 hours previously. When questioned about possible aspiration, the parents indicated that the child had wandered into the room where they had been entertaining guests. On a table in the room had been a bowl of peanuts, which the child quickly identified. When the parents heard the child choking, they immediately turned him upside down and patted his back to relieve the choking. He did not lose consciousness, and appeared to recover, but continued to have an intermittent cough and noisy breathing.

On exam in the clinic, there were decreased breath sounds and intermittent wheezes on the right. Chest x-ray was normal. With a history of possible foreign body aspiration, the otolaryngology service was contacted. Rigid bronchoscopy in the operating room revealed a peanut fragment within the right mainstem bronchus. A Hopkins rod foreign body forcep with the glass rod telescope was used to remove the fragment. The child was observed overnight and discharged the next day with no sequelae.

**Case 2:** A six-month-old girl was referred to the pediatric pulmonary clinic because of chronic wheezing and intermittent stridor since birth. She had been treated for reactive airway disease and presumed gastroesophageal reflux. She had been hospitalized three times with minimal improvement. There was no history of known aspiration. Multiple chest radiographs had been normal.

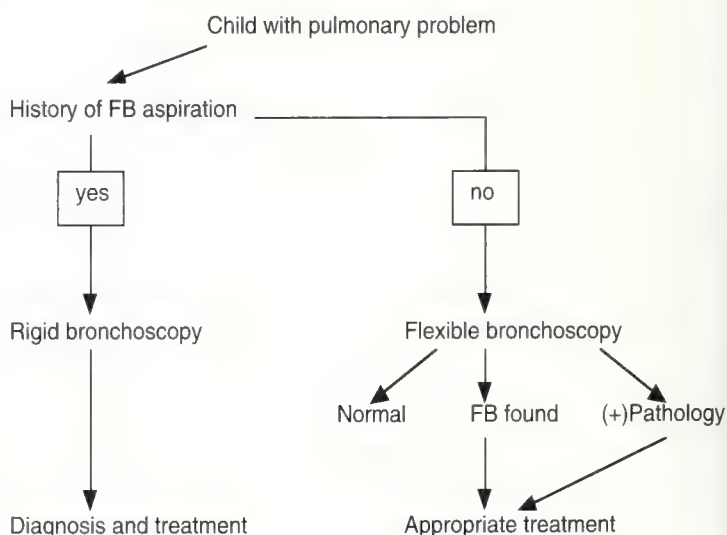
A barium swallow radiograph was highly suggestive of a vascular ring compressing both trachea and esophagus. This was confirmed by echocardiography and cardiac catheterization. Flexible bronchoscopy before surgery elegantly demonstrated compression of the trachea and left mainstem bronchus by a pulsatile vascular ring. At operation, an atretic left anterior aortic arch was noted encircling the trachea and esophagus. The ligamentum arteriosum completed the ring. The lesion was surgically corrected and the patient did well in the immediate postoperative period.

At 10 months of age, a repeat flexible bronchoscopic exam was performed because of persistent, but lessened, wheezing. She was found to have malacia of the trachea and left mainstem bronchus, presumably because of prior compression by the vascular ring. The patient is followed by the pediatric pulmonary clinic and her symptoms continue to improve.

**Case 3:** A 13-year-old boy had been followed in the pediatric pulmonary clinic for many years because of asthma and reactive airway disease, and intermittent right lower lobe pneumonia. His asthma responded to medical management and his pneumonia also responded well to antibiotics, but would return after antibiotics were discontinued. Physical and radiographic exams did not clarify the history. According to the parents, there was no history of aspiration.

Because of the recurring nature of the pneumonia and the possibility of an anatomical obstruction to a right lower lobe

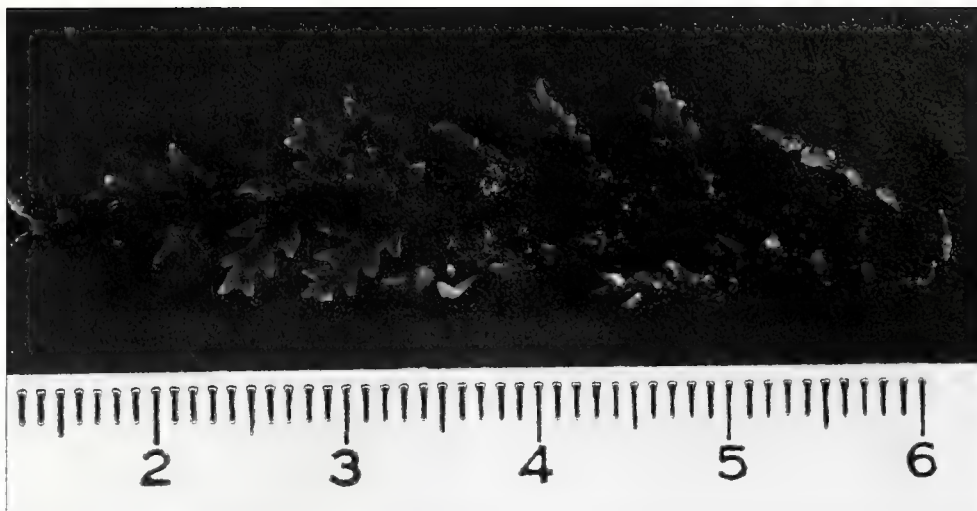
Table 2. Evaluation of pediatric pulmonary patient



bronchus, flexible bronchoscopy was performed. Pus was seen pouring out of the right lower lobe segments. After routine cultures were taken, the bronchi were washed with sterile saline. A small, dark object was noted within the take-off to one segment of the right lower lobe. Flexible grasping forceps were passed through the bronchoscope and the object was grasped, but could be advanced outward only several millimeters. It was clear that better airway control and larger instruments would be needed to retrieve this foreign body.

The otolaryngology service, using a rigid bronchoscope with the Hopkins rod and foreign body forceps, retrieved the portion of some artificial tree seen in Figure 2, above. The parents, when questioned again, remembered that, during the decoration of an artificial Christmas tree, when the child was approximately 16 months old, he had begun to cough and briefly turned blue. After holding him upside down and pounding on his chest he seemed to recover.

His longstanding pulmonary symptoms resolved after the foreign body was removed.



**Fig 2:** A portion of artificial Christmas tree removed with a rigid bronchoscope with the Hopkins rod and foreign body forceps.

## Conclusion

Bronchoscopic evaluation is now a standard procedure in the evaluation of many childhood pulmonary diseases. We have presented three cases illustrating both the advantages and limitations of flexible and rigid bronchoscopy. The combined efforts of otolaryngologists and pediatric pulmonologists in the decisionmaking process is invaluable in the care of the child with airway disease. □

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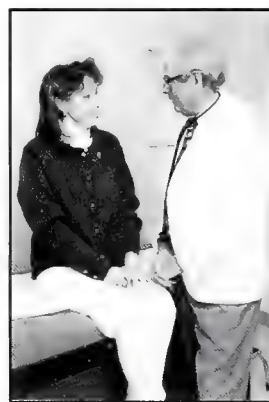
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# Ultrapulse CO<sub>2</sub> Laser Resurfacing

## Treatment for Wrinkled, Photodamaged Skin

Aleksandar L. Kronic, MD, PHD, Greg E. Viehman, MD, Shabnam Madani, MD, and Robert E. Clark, MD, PhD

Sunlight damages skin, leading to epidermal atrophy, actinic keratoses, solar lentigines, and nonmelanoma skin cancer. Ultraviolet light also injures dermal collagen and elastin, producing solar elastosis, yellowish discoloration, skin laxity, rhytides (wrinkles), and telangiectases (Figure 1A, next page).

A number of treatments have been tried in an attempt to restore sun-damaged skin.<sup>1</sup> Topical applications of retinoids, alphahydroxy acids, trichloroacetic acid, and bleaching agents (hydroquinones) are mainstays of the conservative approach to rejuvenating photodamaged skin. Other common treatments include chemical peels, dermabrasion, and soft tissue augmentation with injectable collagen, but no therapy leads to more than temporary improvement. Significantly better cosmetic results are obtained using modern ultrapulse CO<sub>2</sub> laser surgery resurfacing, a technique that has revolutionized the treatment of photodamaged skin and wrinkles.

Treating facial actinic damage with the carbon dioxide laser was first suggested nearly 10 years ago.<sup>2,3</sup> Even the now-outdated continuous-wave CO<sub>2</sub> laser was more effective than deep chemical peels and dermabrasion. But the low-energy continuous-wave CO<sub>2</sub> laser beam caused nonspecific thermal injury of the skin and adnexal structures, producing permanent color changes and scarring.

Ultrapulse CO<sub>2</sub> laser, the backbone of modern nonselective laser surgery, achieves the well-controlled tissue vaporization necessary for successful skin resurfacing, and since high energy pulses of adequate energy are delivered in intervals shorter than the thermal relaxation time of the skin (695-950 microseconds), damage is confined to the epidermis and papillary dermis.<sup>4</sup> With a pulse duration of less than 1 ms, laser light penetrates only 20 µm into tissue and additional, nonspecific damage is limited to 50-100 µm. The risk of scarring and injury to the deep reticular dermis is significantly reduced, making the ultrapulse CO<sub>2</sub> laser an ideal means of skin resurfacing.

Several CO<sub>2</sub> lasers have been approved by FDA for skin resurfacing. These include the Coherent UltraPulse laser (Coherent, Palo Alto, CA), Sharplan Silktouch laser system (Laser Industries, Allendale, NJ) and True Pulse (Tissue Technologies, Albuquerque, NM).

### Instrument Description and Technical Specification

We use the Coherent UltraPulse 5000C Laser (UPL) with Ultrascan technology. This radio frequency, liquid-cooled, sealed carbon dioxide laser<sup>5</sup> produces laser light of wavelength 10.6 µm (in the invisible infrared spectrum). This laser is also equipped with a collateral helium-neon laser with a wavelength of 633 nm and power of 5.0 milliwatts, which provides an aiming beam to facilitate targeting of the particular spot.

The system uses a computerized pattern generator (CPG), to permit fast scanning and more uniform delivery of pulses to the operative field than is possible delivering individual pulses freehand. The CPG generates collimated 2.25 mm spots in seven different patterns. Pattern dimensions vary from 0.1 to 25 mm; a single full pattern exposure lasts approximately 1 second. Pattern densities vary from -10% overlapping, through no overlapping, up to +60% overlapping of individual spots.

### Patient Evaluation

Careful preoperative care is needed for optimal results of laser resurfacing. Detailed present and past medical history and a thorough physical exam of the face are mandatory. Specific issues such as a tendency to hypertrophic scarring, dark skin complexion, easy tanning, and the presence of herpes simplex infection should be carefully reviewed in order to predict the risk of postoperative complications.<sup>6</sup> Psychological evaluation may be helpful if there are questions of unreasonable expectations, anxiety, or depression.

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Our standard one-month pretreatment regimen consists of nightly application of 0.025% or 0.05% tretinoin cream, or a bleaching agent (4% hydroquinone-10% glycolic acid with SPF 19 sunscreen [Viquin Forte, ICN Pharmaceuticals, Costa Mesa, CA]). One day before surgery the patient starts a seven-day course of 400 mg acyclovir (Zovirax) po tid as prophylaxis against herpes infection. On the day of surgery, we begin antibiotic prophylaxis with cephalexin 500 mg po tid, or erythromycin 250-500 mg po qid, or clindamycin 150 mg qid, and anti-inflammatory treatment with prednisone (40 mg po, tapering by 5 mg each day); we carry these treatments through the first postoperative week.



**Fig 1A (left):** Dermatoheliosis (significant photodamage) in a 58-year-old female. **B (right):** Same patient six months after full face resurfacing with ultrapulse laser. Notice significant improvement in skin texture, surface contour, and perioral rhytides.

## Skin Resurfacing Procedure

The laser treatment itself takes 45-60 minutes for the full face (approximately 15-20 minutes per each pass). Very often the desirable depth of skin removal is achieved after two passes, but a third pass may be needed in selective areas where the wrinkled skin is thicker or solar elastosis more pronounced. Thinner skin, especially around the eyes, is resurfaced with lower energy fluences and low density patterns;<sup>7</sup> higher fluences and overlapping patterns are used to ablate deep actinic damage.<sup>8</sup> Ablation should extend to the deep papillary dermis (producing a "chamois cloth appearance") and the shapes of the patterns should be changed in subsequent passes in order to obtain uniform coverage of the treated skin. Sterile, ultra-thin, semi-occlusive adhesive polyurethane dressing (Flexzane, Dox Hickam Pharmaceuticals, Inc., Sugarland, TX) is placed over the treated areas, except the eyelids, around the mouth and nostrils (Figure 2, at right).



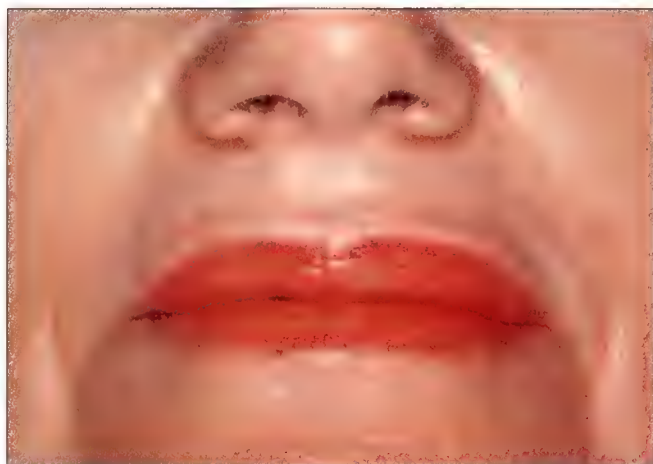
**Fig 2:** Postoperative wound dressing (Flexzane) applied immediately after the resurfacing procedure.

## Postoperative Course and Management

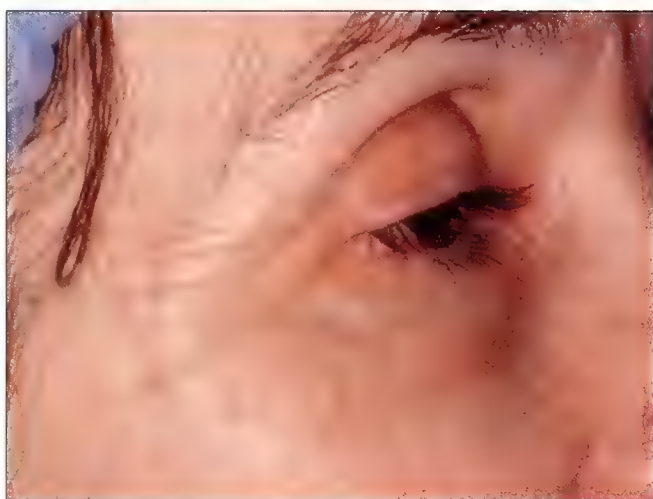
The dressing is left in place for three days, after which the patient removes the bandage by showering with lukewarm water and gently peeling away the polyurethane strips. Oozing may be significant throughout the week after treatment. This is controlled with applications of acetic acid (5 cc of 5% distilled white acetic acid [white vinegar] in 150 cc of water). Postopera-

tive edema usually resolves in three to five days. Epithelization is enhanced by applying Aquaphor healing ointment (Biersdorf, Inc., Norwalk, CT), which prevents drying of treated areas and decreases crusting. Epithelization is usually complete in seven to 10 days; thereafter patients apply moisturizers and may apply makeup with a green color to neutralize postoperative redness. Topical tretinoin and Viquin Forte are restarted around the fourth postoperative week. Thorough sun protection is manda-





**Fig 3A (left):** Significant correction of perioral wrinkles in 48-year-old woman with pronounced perioral wrinkles and nasolabial folds. **B (right):** Significant improvement five months after laserabrasion.



**Fig 4A (left):** 67-year-old woman with "crow's feet" type periocular wrinkles. **B (above right):** After first postoperative week there is still mild oozing, crusting, and red discoloration. **C (near right):** Six-month follow-up reveals substantial improvement of periocular rhytides, with restoration of the normal skin color.



tory throughout the first three months after the resurfacing. Sunscreens with SPF 30-45 should be applied on a daily basis after the second postoperative week.<sup>6</sup>

The final cosmetic evaluation is made six months after treatment. Shallow and mid-depth wrinkles (Figures 1A, B), especially in perioral (Figures 3A, 3B) and periocular regions (Figures 4A, C), as well as shallow ice-pick acne scars (Figures 5A, B, next page) should show considerable cosmetic improvement. Deep wrinkles and scars are less responsive.

## Complications of Laser Skin Resurfacing

Early side effects and complications include edema, oozing, and irritant contact dermatitis. Temporary removal of the skin barrier increases the dermal delivery of agents that cause irritant

contact dermatitis. Strict avoidance of topical preparations in the immediate postoperative period reduces the incidence of this complication.

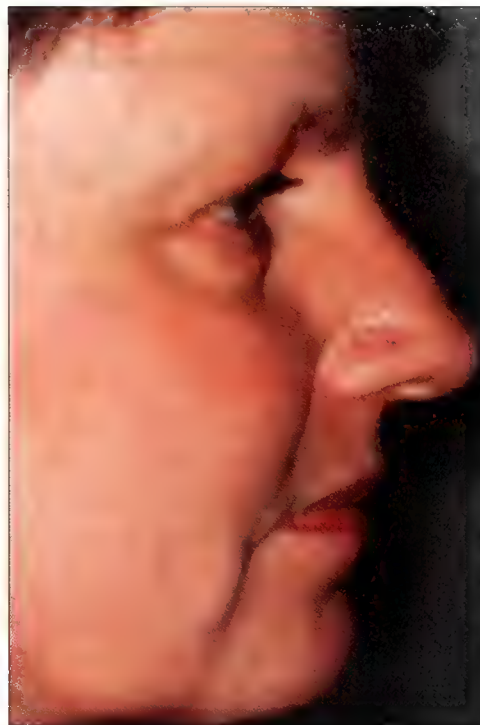
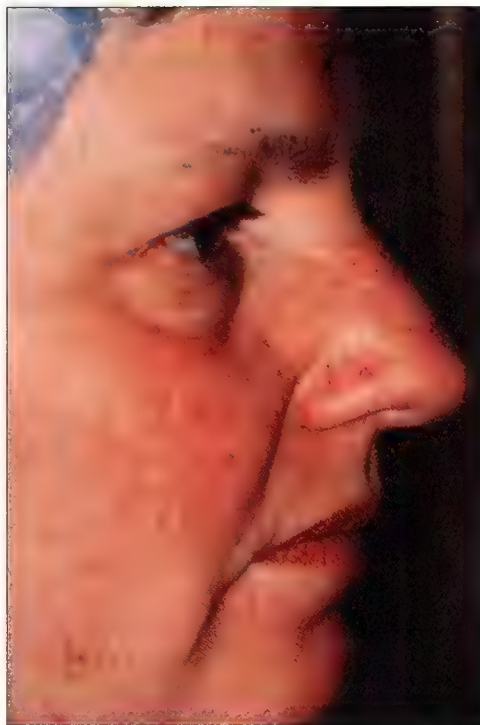
Mid-term complications consist of postoperative infection and red discoloration (Figure 4B). The so called "ideal candi-

dates" for laser resurfacing have light skin, blond hair, and blue eyes, but are prone to long-lasting (up to six months) postoperative erythema. The red discoloration is easily neutralized with green makeup formulas (Physician formula, Clinique), and usually subsides in four to eight weeks. Careful attention to postoperative wound care minimizes infections and scarring.

Late complications include hyperpigmentation, hypopigmentation, and scarring. Careful pre- and posttreatment selection of patients, pre- and postoperative treatment with tretinoin and hydroquinone, as well as prompt treatment of early or mid-term complications substantially reduce the risk of late complications. Limiting the depth of laser resurfacing to the deep papillary dermis without penetrating the reticular dermis minimizes the risk of hypertrophic scarring.<sup>6,9,10</sup>

## Conclusion

Skin resurfacing with the ultrapulse CO<sub>2</sub> laser effectively treats photodamaged, wrinkled skin. It is more effective than dermabrasion and deep chemical peels, and has fewer postoperative



**Fig 5A (left):** 48-year old woman with ice-pick acne scar. **B (right):** Considerable cosmetic improvement seven months after laser resurfacing. Note the decrease in the depth of the scar pits and much smoother surface contour of the skin.

complications. Regeneration of the epidermis and dermis, collagen remodeling, and collagen shrinkage are proposed mechanisms by which the observed improvement in solar damage occurs. Use of a computerized pattern generator allows fast scanning of the treated areas, shortens the procedure, and contributes to the uniformity of resurfacing. With careful patient selection, superior, long-lasting results are possible. □

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# Feeding Each Other

William A. Hensel, MD

My minister has used this story in several sermons: A man dies and is allowed to visit Heaven and Hell. In Hell he sees an enormous banquet hall, its great table filled with delicious food. As he watches, the hall fills with a crowd of emaciated people who rush to the table. But the people's arms are bound so that they cannot bend their elbows. Try as they may, the starving people cannot get the food to their mouths. They leave hungry.

In Heaven, the scene is strikingly similar: a banquet hall and a food-filled table, but the heavenly crowd is happy and well fed. As they seat themselves he sees that their arms are also bound. Soon, the difference becomes clear. Each person picks up a fork filled with food and proceeds to feed his neighbor. No one leaves the hall until all have been fed.

I think of that story when I think of Judy, a 54-year old patient with squamous cell cancer of the throat. She first came under my care during the hospitalization in which we found she had an inoperable recurrence of her cancer.

Judy has never had much in the way of money or possessions. She has struggled most of her life just to "get by." Because she didn't want to talk about her illness, and cringed every time I used the word cancer, I knew that she was overwhelmed by the prospect of dying. I explained that I would give her palliative care, doing whatever I could to add quality to her remaining days. She agreed with this approach, but I could tell that she remained skeptical. Her life had always been hard and she expected it to get harder.

After discharge from the hospital, Judy moved in with her daughter. But the house was small and the daughter was a working, single parent—not an arrangement that could last for long. Fortunately, our community had just opened Beacon Place, a residential hospice built especially for the poor who have no other place to go for their terminal care. Judy qualified.

At her last visit to my office, shortly before entering Beacon Place, Judy still refused to discuss her prognosis. She

remained afraid of the prospect of dying. She told her daughter "You're only putting me away to die." Despite my reassurances, she continued to dread going to "that home."

But once she arrived at Beacon Place, something remarkable happened. Judy, the skeptic, became Judy, the happy caregiver. It has happened in this way. Judy's suspicions about "that home" were quickly dispelled by the warm reception of the staff. Beacon Place is a nice facility, filled with nice people. Ever restless, Judy has complete freedom to wander about her big, new home. She was surprised to find she could have a couple of beers each evening. Judy seems to have all she needs.

But these things alone do not account for Judy's transformation. She is a friendly, good-natured woman who has known hard times, and so is naturally empathetic to the plight of others. In her daily wanderings, Judy stops to visit with the other residents of Beacon Place. She has become an important part of the lives of many of these people. They look forward to her visits, her caring face, her comforting words. In a very real way, Judy has become an important caregiver at Beacon Place.

Like the people in my pastor's heaven, as Judy has served others so has she also been served, because as she makes her rounds, she cannot avoid confronting death. In the tradition of hospice, she sees her new friends die as peacefully and comfortably as their condition allows. She sees them cared for to the very end. She sees that when that end comes, they are not alone. Death had been what Judy feared and would not discuss. Now that she has witnessed death in the intimate surroundings of Beacon Place, Judy has lost her fear.

One more thing surprised Judy. The families of those who died have often expressed their appreciation for her companionship by giving her something that belonged to the deceased—like the beautiful bedspread that now adorns her bed. It bears silent testimony to the help she has given and received.

As I write her story, Judy is happy at Beacon Place. She is losing weight and becoming hoarse, but her daily rounds continue—even when she must only sit in silence, simply holding the hand of her fellow resident. She straightens her room every morning and drinks her beer every afternoon. She knows now that she is dying. She is no longer afraid. Her relentlessly progressive cancer makes it difficult to swallow food, but in the ways that are most important, Judy is well fed. □

---

Dr. Hensel is Clinical Associate Professor, Moses H. Cone Memorial Hospital Family Medicine Residency Program, 1125 N. Church St., Greensboro, 27401-1007, in affiliation with the Moses Cone Health System, the Greensboro Area Health Education Center, and the Department of Family Medicine, School of Medicine, UNC-Chapel Hill.

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# CME Calendar

## **CARDIOVASCULAR MEDICINE**

***June 10-14***

### **6th Annual Advanced Cardiovascular Interventions Symposium**

Place: Westin Resort, Hilton Head, SC  
Credit: up to 18 hours Category 1, AMA  
Fee: \$750  
Info: Mary Anne Cox, CHS/Charlotte AHEC Office of CME, 1366 E. Morehead St., Charlotte 28204, 704/355-8631 or 800/562-7314

***September 27***

### **Duke Heart Center Lecture**

Place: Duke Hospital North  
Info: Duke Heart Center, 919/681-4278, fax: 919/681-7953

## **GENERAL**

***May 14-16***

### **Carolinas Medical Center Spring Symposium 1997**

Place: Charlotte Convention Center  
Info: Mary Anne Cox, CHS/Charlotte AHEC Office of CME, 1366 E. Morehead St., Charlotte 28204, 704/355-8631 or 800/562-7314, e-mail: symposium@carolinas.org

***September 18-21***

### **Coastal Medical Retreat and 14th Aesculapian Sports Classic**

Place: Kingston Plantation, North Myrtle Beach  
Credit: 9 hours Category 1, AMA  
Info: Beth Mixon, Coastal AHEC, P.O. Box 9025, Wilmington 28402-9025, 910/343-0161 ext. 312

***October 30-November 1***

### **2nd Annual Integrating Mind, Body, and Spirit in Medical Practice Conference**

Place: Sheraton Imperial Hotel, Research Triangle Park  
Info: 919/684-4293, Internet URL: <http://www.mc.duke.edu/nursing/nshomepg.htm>

***November 12-15***

### **International Congress on Performance Measurement and Improvement in Health Care**

Place: Chicago, IL

Info: hosted by: Joint Commission on Accreditation of Healthcare Organizations and International Society for Quality in Health Care, Inc.  
For details—fax: 630/792-5858; or contact  
Internet URLs: <http://www.jcaho.org>  
<http://www.jacho.org/JCI.html>  
<http://hsfo.health.latrobe.edu.au/ISQua/Confs.html>

## **INFECTIOUS DISEASE**

***May 10***

### **Contemporary Issues in the Management of HIV Infection**

Place: Pinehurst Hotel, Pinehurst  
Credit: 5.5 hours Category 1, AMA  
Fee: \$25  
Info: Office of CME, Box 3108, Duke University Medical Center, Durham 27710, 800/222-9984

***October 15-19***

### **Infectious Disease '97 Board Review:**

#### **A Comprehensive Review for Board Preparation**

Place: Ritz-Carlton, Tysons Corner, McLean, VA  
Fee: \$820 for physicians; \$695 for physicians-in-training (before July 15)  
Credit: 36 hours Category 1, AMA  
Info: Center for Bio-Medical Communications, Inc., 80 W. Madison Ave., Dumont, NJ 07628, 201/385-8080, fax: 201/385-5650, e-mail: cbcbiomed@aol.com

## **INTERNAL MEDICINE**

***June 6-9***

### **Comprehensive Internal Medicine Board Review Course**

Place: Winston-Salem  
Credit: 32 hours Category 1, AMA  
Info: Office of Continuing Education, Bowman Gray School of Medicine, 910/716-4450, or Physician Access Line (PAL) 800/277-7654

## **MEDICAL SOCIETY**

***November 13-16***

### **North Carolina Medical Society's Annual Meeting**

Place: Pinehurst Resort & Country Club  
Info: Alan Skipper, NCMS, 800/722-1350 or 919/833-3836

## **NEUROENDOCRINOLOGY**

**November 14-15**

### **3rd Annual Pituitary Days**

Place: Omni Hotel, Charlottesville, VA

Info: Bebe Moore, UVA Office of CME, 800/552-3723,  
804/924-5310

## **PEDIATRICS**

**September 13-14**

### **24th Annual Postgraduate Course**

#### **Alexander Spock Symposium:**

#### **Practical Management of Common Problems in Ambulatory Pediatric Patients**

Place: Searle Center, Duke Medical Center, Durham

Fee: MDs: \$150 for both days (\$100 Saturday or \$50  
Sunday); allied health professionals: \$90, MDs-in-  
training: free

Credit: hours pending

Info: Joseph Marc Majure, MD,  
Course Director, Assistant  
Professor of Pediatrics,  
Duke Division of Pediatric  
Pulmonary Diseases, Box  
2994, DUMC, Durham  
27710, 919/684-2289,  
fax: 919/684-2292

## **SPORTS MEDICINE**

**July 4-6**

### **NCMS Sports Medicine Symposium**

Place: Sheraton Atlantic  
Beach Resort

Info: Dana Hammermeister,  
NCMS, 800/722-1350 or  
919/833-3836 (see above  
for more details)

## **MISCELLANEOUS CALENDAR**

**November 12-15**

### **American Medical Writers**

#### **Association Annual Conference**

Place: Sheraton Hotel, Boston, MA

Info: AMWA, 9650 Rockville  
Pike, Bethesda, MD  
20814-3998, 301/493-0003,  
fax: 301/493-6384,  
e-mail: amwa@amwa.org,  
Internet URL:  
[http://www.cma.ca/mwc/  
amwa-canada/amwa.htm](http://www.cma.ca/mwc/amwa-canada/amwa.htm)

**Right around the corner...July 4-6**

### **NCMS Sports Medicine Symposium "Evaluation and Treatment of the Injured Athlete"**

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# Aphorisms of the Month

Daniel J. Sexton, MD, Section Editor

## "Money"

Money, it turned out, was exactly like sex: You thought of nothing else if you didn't have it and thought of other things if you did.  
—James Baldwin

The value of a dollar is social, as it is created by society.  
—Emerson

No honest, hardworking official likes to see good money disappearing into the hands of the Treasury at the end of the financial year.  
—Joyce Cary

God make, and apparel shapes, but it's money that finishes the man.  
—Thomas Fuller

Like grain in a time of famine, the immense resources which the nation does in fact possess go not to the child in the greatest need but to the children of the highest bidder—the child of parents who, more frequently than not, have also enjoyed the same abundance when they were schoolchildren.  
—Jonathan Kozol

In our culture we make heroes of the men who sit on top of a heap of money, and we pay attention not only to what they say in their field of competence, but to their wisdom on every other question in the world.  
—Max Lerner

Much work is merely a way to make money; much leisure is merely a way to spend it.  
—C. Wright Mills

When reason rules, money is a blessing.  
—Publicus Syrus


It is better to have a permanent income than to be fascinating.  
—Oscar Wilde

Money, big money (which is actually a relative concept) is always, under any circumstances, a seduction, a test of morals, a temptation to sin.  
—Boris Yeltsin

*Fax aphorisms to Dr. Sexton at 919/684-8358,  
or send them via e-mail: sexto002@mc.duke.edu*

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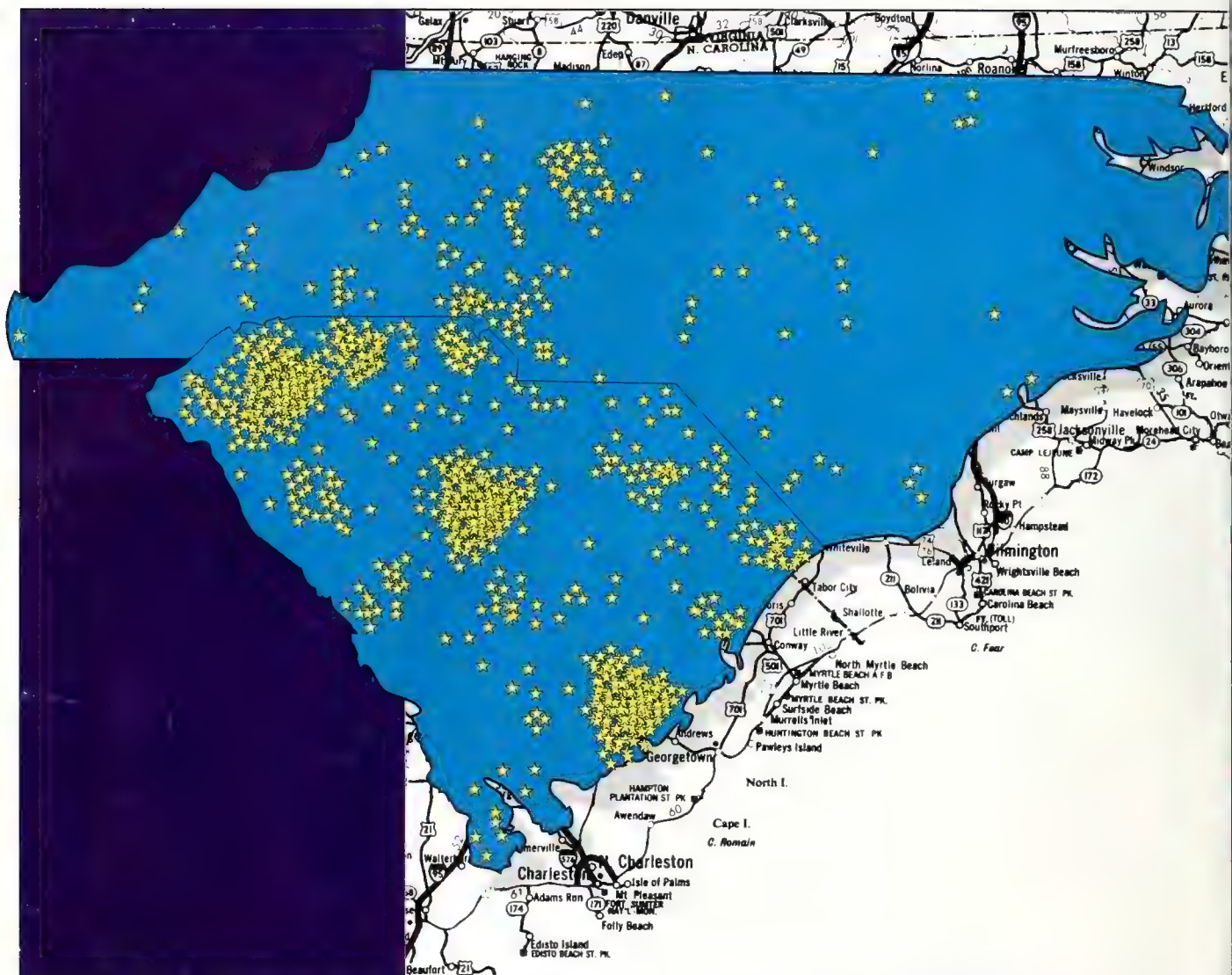
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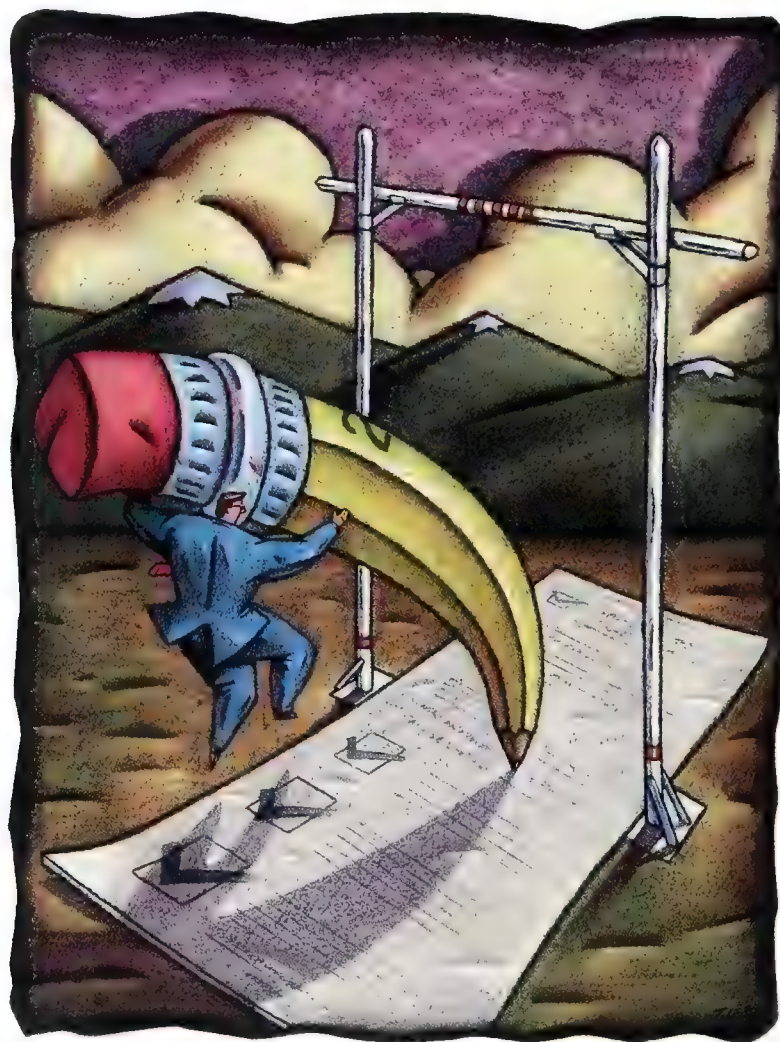
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**For Doctors and their Patients**

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# North Carolina Medical Journal

## FOR DOCTORS AND THEIR PATIENTS

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July/August 1997, Volume 58, Number 4

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# Letters to the Editor



## Psychiatrists Commend March/April Issue

### To the Editor:

Obviously behind in my reading, I just completed the outstanding March/April *North Carolina Medical Journal*. I was impressed and pleased by all aspects of the special issue on gay, lesbian, and bisexual patients, physicians, and trainees, from the striking cover to the excellent quality of the articles.

I look forward to using several of the articles in my teaching of medical students and residents, as well as in presentations to colleagues and community groups. Thank you for a timely and thoughtful issue.

Doreen L. Hughes, MD, Assistant Professor  
Department of Psychiatry and Behavioral Medicine  
Bowman Gray School of Medicine,  
Winston-Salem, NC 27157  
Dr\_Doreen\_Hughes@medcenter.wpmail.wfu.edu  
via Internet

### To the Editor:

Thank you very much for the March/April issue on gay and lesbian issues. I had said that I would contribute an article. The original due date passed, and since I never heard anything more, I (wrongly) assumed that the issue wasn't going to happen. I regret that I didn't call to find out whether I could still send my article. But much of what I would have written, about working with lesbian, gay, and bisexual health care providers, was covered in the other articles. Again, thanks for doing it.

I really enjoy the *NCMJ* and usually read it from cover to cover, while other journals pile up unread. Thanks for continuing to publish such a readable, pleasant, informative, and helpful journal!

Margie Sved, MD, Past President  
Association of Gay and Lesbian Psychiatrists  
Division Director, Adult Psychiatry  
Dorothea Dix Hospital  
820 S. Boylan Ave.  
Raleigh, NC 27603  
msved@dhr.state.nc.us via Internet

**Editor's note:** We understand and appreciate the demands and time constraints of all our contributors. We have invited Dr. Sved to submit a piece on psychiatric issues in gay and lesbian health for future consideration.

## Topics No Longer Taboo

### To the Editor:

I congratulate Dr. Halperin on a wonderful special issue of the *NCMJ*. The topic of gay and lesbian health is a crucial one that has indeed been long overlooked by most of the medical community. The special issue brings attention to a set of clinical subjects that are of critical importance both to physicians (and other clinicians) and to patients.

I also thank Dr. Halperin for his perspicacious introductory comments to the issue. He served to break the ice on what might otherwise be a taboo topic for some readers. The medical community owes him a lot for this work.

Mark S. Litwin, MD, MPH, FACS  
Assistant Professor  
Urology and Public Health  
UCLA School of Medicine  
66-124 Center for the Health Sciences  
Los Angeles, CA 90095-1738

## Medical Students Find Special Issue Informative

### To the Editor:

I was delighted with the recent special *North Carolina Medical Journal* on lesbian, gay, and bisexual health. I am a final-year medical student at Sheffield University Medical School in England and also a member of the Gay and Lesbian Medical Association based in San Francisco. I read about the special issue in the *GLMA Reporter*.

Congratulations on an obviously successful publication.

Charlotte E. Hall  
9 Churchill Road, Crookes, Sheffield  
S10 1FG England  
C.E.Hall@sheffield.ac.uk via Internet

### To the Editor:

As a third-year medical student, I found the March/April issue of the *North Carolina Medical Journal* a very appropriate and encouraging response to the needs of all patients.

Thank you for helping to educate readers about the health needs of lesbian women and gay men.

Jane E. McMillan, MSIII  
805 Earnest St., #6  
Johnson City, TN 37604

*Continued on page 234*

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## Members May Memorialize Loved Ones

### To the Editor:

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For information, contact the NCMS Foundation office at 919/833-3836 or 800/722-1350 or send your gifts to the Foundation at P.O. Box 27167, Raleigh, NC 27611.

T. Reginald Harris, MD  
808 Schenck St., Shelby, NC 28150

## Letters

continued from page 232

## Deputy Editor Responds to Letters

### To the Editor:

My academic medical career has had its ups and downs, so too, I'll admit, has my fantasy life. I've dreamed of winning the Nobel Prize for my work on radiation and xenotransplantation ("Thank you your majesty. Tell me, does being the King of Sweden mean that you can have all the Swedish pancakes with sour cream you want?"), being named president of Yale University ("Serve as a member of the Board of Directors of General Motors? No, terribly sorry, I can't—I have a meeting of the faculty senate next Tuesday."), or, perhaps, author of a bestselling textbook ("Why yes, I am the author of *Halperin's Standard Textbook of All of Internal Medicine and Surgery*, now in its 102nd edition."). I never fantasized that I'd be famous as a defender of gender preference rights.

My favorite communication about the March/April issue came from a local newspaper reporter who said that she was, "surprised that the *North Carolina Medical Journal* tackled such a controversial issue." I told her not to be surprised that the *North Carolina Medical Journal* was at the forefront of medical journalism; once again scooping the competition—including her paper.

We've received many laudatory remarks and letters about our special issue on gay and lesbian medicine. We're grateful for them. Excuse me, it's time for me to get back to my day-dreaming.

Edward C. Halperin, MD  
Professor and Chair  
Dept. of Radiation Oncology  
Box 3085, Duke Medical Center  
Durham, NC 27710

## Moved by the Music

### To the Editor:

I enjoyed the article in the May/June issue, "A Fine Day in the Dentist's Chair: Pulling With Mozart" (NC Med J 1997;58:200). During the months that I commuted between Hillsborough and Charlotte, I played the same pieces of music on my car stereo. They helped me keep it all together.

Harry Gallis, MD  
Vice President, Regional Education  
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# Emerging Success

## Finding a Void and Filling It

Jeffrey W. Runge, MD, FACEP

All my life I have wanted to be a doctor. I am not sure when I first had the idea, but, like most members of my generation, it probably came from television. I remember, as a four-year-old in 1959, telling mother's friend, Sarah Pope, that I was going to be "an obstetrician." I am sure I had asked my mother about some man on the television, and she replied, "He is an obstetrician." My notoriety in being able to utter the word obstetrician set me on my path to medicine. Throughout my youth and adolescence, I nurtured the image of the doctor I wanted to be—my family doctor in Charleston, T. Fleetwood Hassell. I chose to attend The University of the South, for many reasons, one of which was the high percentage of it graduates accepted to medical school.

As I left Charleston for Sewanee, the first modular ambulance trucks were appearing on the streets of Charleston, replacing those marvelous grand Cadillac ambulances and police station wagons with the stretchers crammed into the back. The end of the war in Vietnam brought in hordes of military corpsmen and medics, expert in trauma care, but up on the Mountain at Sewanee, there were no ambulances, emergency medical technicians (EMTs), or streetwise medics. My classmates and I saw the chance to fill that void. The American Academy of Orthopaedic Surgeons produced an EMT manual, and for \$25 (and 81 hours of time) we eager 18-year-olds could save lives, snatch people from the jaws of death. The Sewanee police chief gave our graduating class of 12 EMTs his old Chevrolet Bel Air station wagon—with a stretcher crammed into the back and a new logo painted on the side. We were in business.

Days later, on a Tennessee roadside tending five people ejected from their vehicle in a head-on collision, I suddenly realized the terror of not knowing what to do as a patient deteriorated in front of my eyes. It was a feeling I did not like and never wanted again. That experience and others gave me the energy to keep on studying when I had studied enough, pro-

pelled me to learn more than I thought I needed to know so I would never again feel that terror of not knowing what to do for the patient lying in front of me.

### Establishing Training Curricula

I didn't know at the time that things were happening in North Carolina that would forever change my life. In the late 1960s, Dr. Eben Alexander, Jr., was Chief of Professional Services at North Carolina Baptist Hospital. At that time, each full-time staff member took a turn serving in the emergency room—until a distinguished pediatrician told Dr. Alexander that he didn't feel competent to care for adult patients. He suggested a curriculum to train physicians to serve full-time in the emergency room. Dr. Alexander did not foresee the three- and four-year residency programs that would result, but he did create the first training curriculum for emergency physicians. Years later he was honored by the Society for Academic Emergency Medicine for his wisdom and foresight.

Support for training other specialists to run an emergency department was widespread, but medical schools—even Bowman Gray—strongly resisted the idea of residency training in Emergency Medicine. The first emergency medicine residency was started at the University of Cincinnati in the early 1970s, and others followed at Los Angeles County and at Emory University in Atlanta. Shortly thereafter, residency training began at Bowman Gray under the guidance of Dr. J.T. McRae and later Dr. Fred Glass.

On the other side of Winston-Salem, at Forsyth Memorial Hospital, Dr. David Nelson started North Carolina's first full-time emergency medicine group. It served as the model for generations of private-contract and fee-for-service emergency physicians in North Carolina, among them several icons in the history of emergency medicine. Dr. George Podgorny joined Dr. Nelson after completing a fellowship in cardiothoracic surgery, and the two became charter members of the American College of Emergency Physicians, a group constituted to provide continuing education to practitioners of emergency medi-

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cine. Drs. Podgorny and Nelson also started a chapter of the American College of Emergency Physicians to help foster the growth of the soon-to-be recognized new specialty. During the 1970s, Dr. Podgorny oversaw development of a section on emergency medicine of the American Medical Association and helped establish the American Board of Emergency Medicine, despite some vigorous protestation.

## Efforts Elsewhere in the State

In Charlotte, a visionary young member of the Department of Internal Medicine at Charlotte Memorial Hospital, Dr. John W. Baker, took responsibility for the state's busiest emergency room. Dr. Baker understood that the future of emergency medicine lay in residency training. The Duke Endowment provided \$1.2 million to begin an emergency medicine residency program at Charlotte Memorial Hospital. Shortly thereafter, the hospital medical staff created the first academic department of emergency medicine independent of the auspices of surgery or internal medicine in North Carolina.

A few years later, Dr. E. Jackson "Jack" Allison was recruited to run the emergency room at the new East Carolina School of Medicine. Dr. Allison came with the understanding that the medical school would create an independent academic Department of Emergency Medicine and would begin residency training in emergency medicine. ECU thus became one of the first medical schools in the country with an independent Department of Emergency Medicine. And after another decade and a long, hard academic battle, the University of North Carolina formed a Department of Emergency Medicine.

While all this was going on, I moved back to Charleston for medical school. In my absence, the city's prehospital emergency medical services had made great gains, but the new specialty of emergency medicine had escaped attention at the Medical University of South Carolina. Patients in the county emergency room were left to the best efforts of unsupervised interns, residents, and medical students. In school, I never heard emergency medicine mentioned as a career choice, and only discovered the specialty fortuitously when I came across the *Journal of American College of Emergency Physicians* in the library stacks. Later, I met the local private hospital's two residency-trained emergency physicians (the first in the city). They had come from Bowman Gray and Charlotte, and those guys could handle anything. I trailed them on night shifts in my "spare time," trying to figure out how they could be so comfortable with such sick people. I saw no terror in their faces when caring for a deteriorating patient. They entertained me with late night stories of "The Pod" (Dr. Podgorny) and Dr. Glass, and Dr. Baker and "Memorial."

My image of my "grown-up" self changed. I began to see myself as Dr. Doug McAdams or Dr. Jack Warren. I told my faculty advisor that I wanted a career in emergency medicine, and he couldn't have had more pain on his face if had I told him I was going to become a plaintiff malpractice lawyer. I will

never forget his sage advice: "If you want to waste your life that way, then so be it." Fortunately, I found myself surrounded with enthusiasm for emergency medicine. I met emergency medicine physicians who held academic titles and were not ashamed to admit that they "worked in the emergency room." I joined the North Carolina Medical Society, and presented my research at the Emergency Medicine Section meeting. I received exceptional clinical training in a busy emergency department, got to work with and train EMTs and paramedics, and found a whole universe of acute medical conditions that were under-researched or being treated with unproven therapy. I knew that I had discovered a way to fulfill my lifetime dream of being a doctor.

## Maintaining the Nation's "Safety Net"

Emergency medicine has become successful because of people like Podgorny, Baker, and Allison who found a void and filled it. But there is still a void today. In many North Carolina hospitals emergency medicine is practiced today as it was in the 1970s—with moonlighting residents and unwilling community participants on a rotating call schedule. But the standard of care has evolved to the point that emergency departments are expected to employ full-time, residency-trained emergency physicians. The void can only be filled if residency training in emergency medicine continues to expand. This year there were 1065 positions in emergency medicine and 1498 applicants; 98% of residency positions were filled, which is higher than the national average for all specialties (88%). For us academics, our job is to train physicians to care for extremely ill patients, and to care for those who have no other doctor to turn to, the uninsured and underserved.

Emergency Medicine is the health care safety net for the nation. Emergency departments are open 24 hours a day, seven days a week, 52 weeks a year. Everyone who comes to the ED receives a medical screening exam by a physician, regardless of his ability to pay. Economic reality has made maintaining the safety net more difficult, but the specialty will be vigilant about preserving it. Policy makers must understand the place and public health function of emergency medical services.

I am thrilled to present to the readers of the *North Carolina Medical Journal* an update on who emergency physicians are and what we have been up to lately. I am proud to live in a state that is far ahead of most others in the evolution of emergency medicine. North Carolina has four residency training programs, and hundreds of residency-trained, board-certified emergency physicians serving in cities and hospitals of all sizes. I am honored to present this special issue of the *Journal* as a look at the state of emergency medical services in North Carolina. □

**Acknowledgment:** The author thanks Journal Associate Editor Dr. Eben Alexander and Dr. George Podgorny, both of the Bowman Gray School of Medicine, Winston-Salem, for their valuable historical perspectives.

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# The Status of Emergency Medical Services in North Carolina

Bob Bailey and Cary McDonald, MD

In 1971, the North Carolina General Assembly directed the Legislative Research Commission to study the problem of emergency medical care in the state. The problems the Commission identified were sufficiently pressing that it requested a plan for a comprehensive system of emergency medical services. In 1973, NC's General Assembly passed the Emergency Medical Services Act, which charged the Secretary of the Department of Human Resources with developing and creating a comprehensive emergency medical services program. Subsequently, the Office of Emergency Medical Services (OEMS) was established to lead the planning, development, coordination, and regulation of such a program.

## The Office of EMS

The state has two goals for its improved emergency medical services: 1) fostering emergency medical services that are designed and operated in accordance with local initiatives, and statewide standards, guidelines, and regulations; 2) ensuring (via supportive statewide programs) that every emergency medical provider is well trained, every emergency vehicle well equipped and properly operated, all emergency services components connected by effective communications, and that high-quality emergency medical services are available to every citizen. The OEMS ensures the availability of appropriately located emergency treatment centers, inspects ambulances annually, issues permits for the operation of ambulance vehicles, certifies EMS personnel, assists in the development of statewide EMS communications systems, approves training programs, investigates complaints, and provides the technical assistance to develop and maintain systems. Medical input to the program comes from a physician who serves as part-time medical advisor.

Mr. Bailey is Chief, and Dr. McDonald is Medical Advisor, NC Office of EMS, P.O. Box 29530, Raleigh 27626-0530.

The OEMS, a section of the Division of Facility Services of the Department of Human Resources, is based in Raleigh. A core staff of specialists in transportation and public education, facilities, education and training, and communications assist OEMS field staff and other agencies and organizations involved in EMS throughout the state. The field staff of the OEMS consists of 13 regional coordinators and three regional supervisors who link OEMS personnel in Raleigh with local EMS organizations. Regional coordinators advise local EMS providers, give technical assistance to regional councils, administer regional agency programs, inspect ambulances, administer certifying examinations, maintain liaison with local government, and generally coordinate regional emergency medical services. Regional supervisors oversee the regional coordinators and such matters as administration of grants to the region and advanced life support programs.

The eastern and western regional OEMS offices are located in Greenville and Black Mountain, respectively; the central regional office is housed with the state EMS office in Raleigh. All activities of the OEMS and its regional offices are coordinated through the chief of the agency. Policy issues are

### Commonly used abbreviations:

OEMS	Office of Emergency Medical Services
EMT	emergency medical technician
GHSP	Governor's Highway Safety Program
MCC	Medical Care Commission
NCMB	North Carolina Medical Board
ALS	advanced life support
BLS	basic life support
EMD	emergency medical dispatch
AED	automatic external defibrillator
EDR	early defibrillator responder
MICN	mobile intensive care nurse
MDA	medical direction assistant

reviewed, and recommendations made to OEMS and the Secretary of the Department of Human Resources, by a panel of health care experts, legislators, and consumers who are members of the State EMS Advisory Council.

## **The Impact of Federal Legislation**

The National Highway Safety Act of 1966 requires states to have a highway safety program in order to receive federal funds for highway construction and emergency medical services that are considered essential to highway safety. The US Department of Transportation has developed nationally accepted guidelines for emergency vehicle design, equipment standards, and emergency medical technician (EMT) training. North Carolina uses most of these guidelines, sometimes with slight modification. During the 1970s, the Governor's Highway Safety Program (GHSP) provided matching grants to many communities for the purchase of ambulance vehicles, and also for training, communications, and other aspects of EMS. In the mid-1980s, GHSP funds allowed establishment of the State Trauma Registry and the Emergency Vehicle Operator's Course.

The federal Emergency Medical Services Systems Act of 1973 affected EMS in North Carolina (until June 30, 1982). This program, by providing funds for planning, implementing, and expanding regional EMS programs, stimulated the development of EMS in North Carolina. During the existence of the federal EMS program, the state received several million dollars, most of which were allocated to the regional programs.

In 1981, the Omnibus Budget Reconciliation Act replaced the EMS Systems Act. It allocated federal funds for EMS through Preventive Health Services Block Grants administered by the Department of Health and Human Services. States are awarded money for a series of programs and then allocate funds among these programs. Preventive Health Services Block Grants have funded programs for home health care, rodent control, water fluoridation, health education and risk reduction, health incentives, EMS, rape crisis, and hypertension control. OEMS also receives federal funds from the Social Services Block Grant (since 1992, only from the Social Services Block Grant).

## **Regulations Governing EMS**

Two state agencies regulate EMS. The North Carolina Medical Care Commission (MCC) establishes the rules and regulations governing ambulance services (licensure of providers, standards for ambulance design and equipment, certification of ambulance attendants and EMTs, and trauma system rules). The North Carolina Medical Board (NCMB) sets standards for mobile intensive care (advanced life support) programs, including determining the training necessary for emergency medical personnel and defining the procedures such personnel may perform. The OEMS enforces, and investigates possible violations of, the standards set by the MCC and the NCMB.

## **Funding EMS**

The Office of EMS receives both state and federal funds. The NC General Assembly appropriates operating funds, which in fiscal year 1996 amounted to approximately \$3.2 million. Federal funds, while important, have been declining. In fiscal year 1982, federal funds amounted to more than \$1.4 million; by fiscal year 1995 the figure had decreased to \$442,336; and, in 1996, to \$193,000. The NC Governor's Highway Safety Program has been a source of intermittent federal funding (for example, \$450,000 to begin the state EMS trauma registry in 1987-1989). Finally, federal funds have come from the federal EMS for Children program; OEMS currently is in the second year of a \$250,000 grant from this program.

## **Status of North Carolina's EMS**

Our present EMS system fosters local services and provides statewide assistance in areas of prevention, communications, education, transportation, EMS for Children, poison center designation, trauma care, and facilities. The goal is to put high-quality EMS within the reach of every citizen. North Carolina has 673 emergency service providers and more than 1,706 ambulances (inspected annually to ensure compliance with the standards set by the Medical Care Commission).

Ambulance services now provide at least basic EMT coverage to every county in North Carolina. Advanced life support (ALS) programs are in place in 97 counties; 71 at the EMT-paramedic level, three at the EMT-advanced intermediate level, 12 at the EMT-intermediate level, and 11 at the EMT-defibrillation level. There are 34 Emergency Medical Dispatch programs in the state. The OEMS maintains an ambulance call report system for use by any ambulance service in the state.

OEMS supplies ambulance medical records to providers. In addition, 185 providers currently use or are installing ambulance trip and/or billing software supplied free of charge by OEMS. Since January 1996, this voluntary system allows all data to be entered electronically.

All ambulances in NC are equipped for two-way radio communication between ambulance and hospital personnel (95% use the state standard VHF frequency of 155.340 MHz). Thirty-four counties have UHF medical communications systems, which enable ALS-trained field personnel to communicate directly with hospitals for medical control purposes.

Telephone access to the EMS system (911 service) is available in 97 counties; three still use a seven-digit telephone number to report emergencies. In 57 counties, enhanced 911 technology allows EMS dispatchers to pinpoint the location of callers for the rapid dispatch of appropriate EMS resources. Of the 43 remaining counties, 35 have county-wide 911, and five have partial 911 emergency telephone service.

As part of its critical care responsibilities, OEMS has developed a statewide poison control system. In 1995, the OEMS designated Carolinas Poison Center located at Carolinas



Medical Center in Charlotte as the state poison center. It was awarded a five-year contract in 1995 to serve as the statewide poison center.

OEMS's trauma program designates trauma centers and maintains a statewide trauma registry. Five facilities (Duke University Medical Center, UNC Hospitals, University Medical Center of Eastern Carolina-Pitt County, NC Baptist Hospitals, and Carolinas Medical Center) have been designated as Level I (statewide) trauma centers based on their compliance with criteria set by the state along guidelines from the American College of Surgeons. Moses Cone Hospital, Memorial Mission Medical Center, Wake Medical Center, and New Hanover Regional Medical Center are Level II (regional) trauma centers, and Cleveland Regional Medical Center is the state's only Level III trauma center. Other facilities are expected to apply for designation as Level II and III trauma centers.

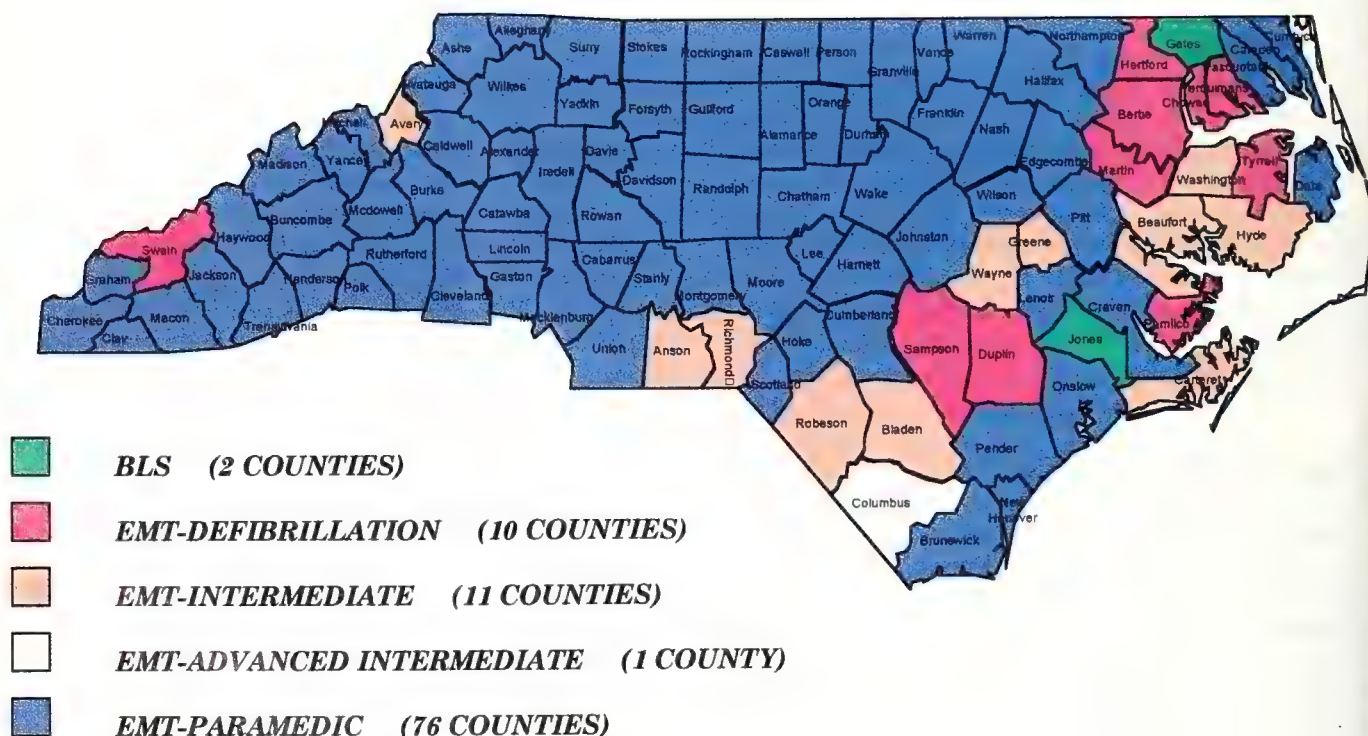
## Certification Levels for Out-of-Hospital Personnel

Personnel trained in basic life support (BLS) include first responders (generally from volunteer fire departments) and emergency medical technicians (usually from volunteer rescue squads). The 16,585 certified EMTs in North Carolina provide cardiopulmonary resuscitation, administer oxygen, and carry

out spinal immobilization, splinting, and vehicular and other on-scene extrication maneuvers. Basic EMT training and an EMT refresher course are provided at community colleges in accordance with the standards set by the MCC and OEMS. BLS personnel are not required to have direct medical oversight.

In addition to having basic EMT skills, ALS-trained professionals are certified at the following levels: EMT-defibrillation (EMT-D), EMT-intermediate (EMT-I), EMT-advanced intermediate (EMT-AI), and EMT-paramedic (EMT-P). Each level of certification documents advanced skills and permits advanced interventions and medication use in the out-of-hospital setting. There are more than 3,550 certified EMT-defibrillator technicians, 1,830 certified EMT-intermediates, 165 certified EMT-advanced intermediates, and 2,490 certified EMT-paramedics in the state. This year the OEMS expects to certify or recertify more than 10,000 EMS personnel. Figure 1, below, depicts levels of EMS providers in North Carolina counties.

EMT-D certification allows use of an automatic or semiautomatic defibrillator, pulmonary ventilation by means of blind insertion of an airway device, and subcutaneous administration of 1:1000 epinephrine for treatment of systemic allergic reactions. EMT-I certification permits administration of intravenous fluids and the following medications: aspirin, dextrose, diphenhydramine, epinephrine 1:10,000, glucagon, naloxone, nebulized albuterol, and thiamine. EMT-AI certification permits cardiac monitoring, external cardiac pacing, intraosseous



**Fig 1:** Levels of EMS providers in North Carolina, by county. Note: Cherokee Tribal EMS is EMT-paramedic certified. Source: NC Office of Emergency Medical Services, May 1997.

infusion lines in children, and administration of atropine, ketorolac, lidocaine, nitroglycerine, and sodium bicarbonate.

EMT-P certification, the highest level of training, permits performance of cricothyrotomy, needle decompression of tension pneumothorax, gastric suction, and urinary catheterization. Medications these paramedics may administer include: adenosine, aminophylline, bretylium, calcium chloride and gluconate, diazepam, dobutamine, dopamine, flumazenil, furosemide, isoproterenol, lorazepam, magnesium sulfate, mannitol, meperidine, midazolam, morphine, nalbuphine, nifedipine, nitrous oxide, phenytoin, procainamide, promethazine, and verapamil.

Advanced training for EMTs is usually conducted by the sponsor hospital, often in conjunction with the local community college or technical institute. Increasingly, EMT-Ps receive initial training at one of eight community colleges offering a two-year degree program in Emergency Medical Science. In addition, each year OEMS sponsors several educational workshops and conferences for EMS personnel. One conference, "Emergency Medicine Today," has been held annually since 1974 and attended by more than 1,100 participants.

Emergency medical dispatch (EMD) certification is awarded to public safety telecommunicators who have specific training for medical emergencies, including use of a medically approved EMD Priority Reference System—a written or computer-generated device that provides medical direction. This allows telecommunicators to assess individual emergency situations and provide pre-arrival first-aid instructions while dispatching appropriate levels of emergency response. EMD is considered part of an ALS program and was adopted by the NCMB in July 1996.

## Early Defibrillation

Early defibrillation saves lives. The public needs rapid, efficient, safe, and organized access to defibrillation. How does the automatic external defibrillator (AED) fit into EMS systems? Is the use of the AED a "medical act"? There is a national trend to de-emphasize the medical act aspect of AED. The NCMB is currently reviewing its position in this regard, in hopes of making AEDs more widely available to basic EMS responders while ensuring some form of medical oversight. One proposed solution is to establish an early defibrillator responder (EDR) certification valid for a period of four years. Members of an emergency response team (a sheriff's department or volunteer fire department that is a recognized component of a county's EMS system) would be eligible for EDR certification. Initial education, continuing education, and certification requirements

would occur at the local level. Medical oversight would come from the ALS medical director or his or her designee.

## Medical Oversight

In each county, out-of-hospital ALS care is governed by a physician who serves as system medical director and who is responsible for all out-of-hospital patient care performed by ALS professionals. ALS medical directors are selected by the county's sponsor hospital; they chair regular meetings of Audit and Review Committees to establish response protocols, monitor continuing education, system management, patient care, and technician performance. Ideally, each medical director would be board-certified in emergency medicine and have expertise in EMS, but several current ALS medical directors have backgrounds in family practice, cardiology, or surgery.

Each county system decides which (if any) of the medications and equipment approved by the NCMB will be used. Certain medications and interventions for life-threatening conditions may be used under standing medical orders. Other

conditions require approval by the on-duty emergency department physician at the sponsor hospital via medical radio. Updated local protocols must be submitted to and approved by the OEMS medical advisor prior to implementation.

Oversight by the ALS medical director includes direct and indirect medical

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"Ideally, each medical director would be board-certified in emergency medicine and have expertise in EMS, but several current ALS medical directors have backgrounds in family practice, cardiology, or surgery."

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control. Direct or "on-line" control occurs when orders for patient care are given by radio or telephone from the emergency department base station. On-line communications about ALS care may be handled by an emergency department physician, an approved mobile intensive care nurse (MICN), or an approved medical direction assistant (MDA). MICNs are registered nurses and MDAs are physician assistants and family nurse practitioners who have been approved by the NCMB to issue instructions to ALS professionals in accordance with established protocols. MICNs and MDAs complete specific training, must strictly follow written protocols and know the standing orders for their prehospital system. Physicians must be available to the MICN or MDA for consultation and to authorize variance (when appropriate) from standard treatment, triage or destination protocols. Base station physicians also coordinate out-of-hospital treatment when a physician who is not a designated medical oversight physician is on-scene, offering assistance.

Indirect or "off-line" medical control has prospective and retrospective components. Prospective control (system design) includes the development of standing medical orders, policies and procedures; the hiring, training, continuing education and field supervision of personnel; and intra-county and inter-



county relationships with other emergency response agencies. Retrospective control refers to issues of continuous quality improvement, reeducation, refresher training, due process and disciplinary procedures of ALS personnel. The medical director may temporarily suspend ALS professionals if patient care issues are compromised, but only the NCMB can revoke certification.

## Medical Director Remuneration

Physicians who provide EMS medical oversight are unevenly compensated in North Carolina. Emergency physicians have pointed out that many ALS medical directors are not remunerated appropriately for their responsibilities. The North Carolina College of Emergency Physicians supports compensating all EMS medical directors for their efforts in ensuring excellence in out-of-hospital care (technician proficiency, education, reeducation, continuous quality improvement, telecommunications, and protocol development based on standards of care in emergency medicine). In a recent OEMS survey, medical directors from 57 of the 97 counties in North Carolina with ALS programs indicated that the average ALS medical director worked more than 200 hours annually. Assistant or associate

ALS medical directors contributed an average of 250 hours each year, none of which were compensated. Thirty of 49 responding ALS medical directors receive compensation averaging \$8260 annually, but 10 physicians (principally serving more populous counties) receive over \$10,000 annually and 15 (largely in rural counties) get about \$3000. In 1995, with support from the NC Medical Society, the NC General Assembly extended the Good Samaritan Law to protect from civil liability physicians serving without compensation as EMS medical directors. It is not yet known whether this law will remove the disincentive of liability that prevents volunteer service.

## The 21st Century

North Carolina has a basic EMS system solidly in place, but there are new challenges as EMS move into the next millennium. New providers, managed care, reduced funding resources, consolidation of hospitals and EMS into regional and national systems, expanded scope of service and of practice will all impact EMS in the future. North Carolina's OEMS will continue to be a proactive leader in maintaining high-quality, out-of-hospital care to its most precious resource, its citizens. □



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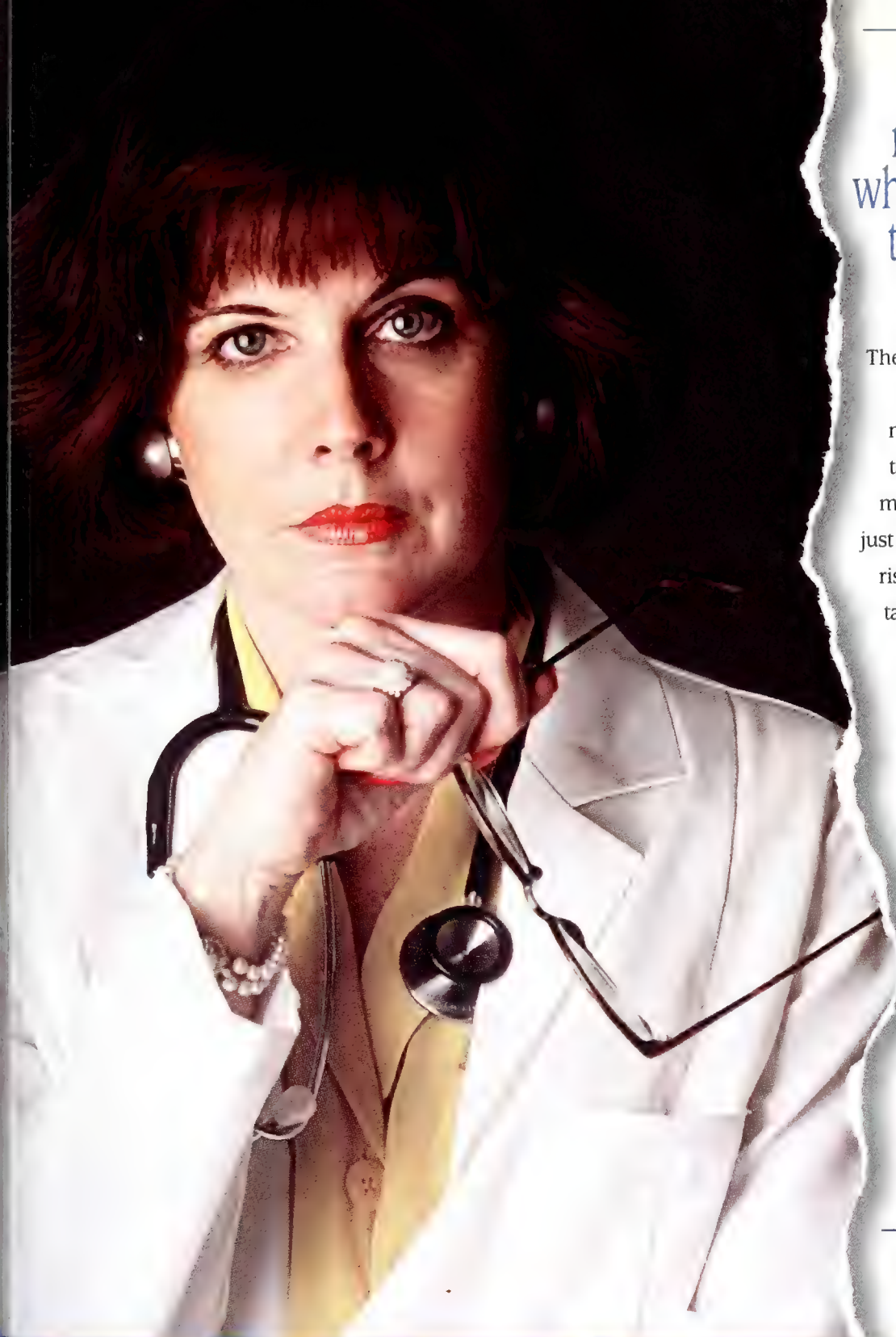
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# The North Carolina Trauma System

John W. Baker, MD, FACEP, Sharon Baker Rhyne, MHA, MBA, CHE, and Christopher C. Baker, MD, FACS

Trauma is a major public health problem. It is the leading cause of death in Americans younger than age 40. More than 100,000 Americans are killed every year and another 18 million are temporarily or permanently disabled. The cost is staggering, estimated at more than \$400 billion in 1994 alone.<sup>1</sup> Death due to violence alone results in more years of lost life than all cancers. This scourge has affected virtually every family in the nation.

That's the bad news. The good news is that trauma deaths have decreased during the past 20 years. Specifically, there has been a significant decrease in the numbers of motor vehicle-related fatalities.<sup>1</sup> When the data are analyzed, it becomes apparent that primary prevention—reducing auto wrecks—is not a significant component of this trend. Air bags and car design—and trauma care—have led to these modest gains. In fact, compelling data suggest that these gains result from the availability of trauma care systems.

The core component of such systems is the trauma center. In 1976, the Committee on Trauma of the American College of Surgeons published *Optimal Hospital Resources for the Care of the Injured Patient*, listing the requirements for a facility designed to care for the complex/critical trauma patient. Criteria were specified for both the physical plant as well as the desired professional staff to care for the injured patient. The proper use of "centers of excellence" requires both efficient triage of patients to identify those who needed special care, and a well-organized system to transport the injured expediently without compromising evaluation and treatment. The Committee on Trauma has devised, and modified over the years, a template for field triage based on 1) abnormal physiologic signs, 2) obvious anatomic injury, 3) mechanisms of injury, and 4) concurrent disease to assess severity. Protocols for field evaluation and immediate treatment of life-threatening problems have been defined. Transport guidelines take into account the availability of hospital resources, time-distance relationships, and mode of transport. Finally, because transport to an intermediate care facility may be advisable, there are triage

protocols to assess whether an injured patient needs referral to a designated trauma center.<sup>2</sup>

As one might expect, the first trauma care systems were begun in well-defined geographic-political areas. In the late 1970s, cities like San Francisco designed systems centered around single trauma centers. As a result of comparisons between communities with and without trauma systems, other counties and cities opted to create systems for the care of the injured patient. Over time, these systems have expanded to serve larger geographic units and there have even been attempts to make statewide and inclusive systems. Maryland and Oregon have been trailblazers in the movement to create single, statewide trauma systems.

## NC Trauma Centers and Trauma Registry

In North Carolina, the first tentative steps toward the creation of a trauma system took place in the mid-1970s. After implementation of the NC Emergency Medical Services Act of 1973, the newly formed NC Office of Emergency Medical Services (OEMS) asked hospitals to categorize themselves with regard to their ability to care for patients suffering trauma, burns, and spinal injuries. In 1980, OEMS developed criteria for Level I and Level II trauma centers and implemented a statewide voluntary system of designation. The impetus and the millions of dollars needed for this project came from grants funded by the Federal EMS Act of 1973. By 1982, Duke University Medical Center, UNC Hospitals, and North Carolina Baptist Medical Center had received the first Level I trauma center designations in North Carolina. Pitt County Memorial Hospital was designated the first Level II trauma center in 1983, followed by Moses H. Cone Memorial Hospital in 1984; Carolinas Medical Center in 1986; Wake Medical Center in 1987; New Hanover Regional Medical Center in 1989; and Memorial Mission Hospital in 1995. Pitt County Memorial upgraded to a Level I in 1985 and Carolinas Medical Center in 1990. As a

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result, there are five Level I and four Level II centers in North Carolina today. Level III criteria were developed in 1990, and the first Level III center, Cleveland Regional Medical Center, was designated in 1997 (Fig. 1, below).

One of the most successful aspects of our trauma system has been the development of the NC Trauma Registry. Initiated in 1987 by OEMS, programmed by the Department of Surgery at UNC-CH, and supported by grants from the Governor's Highway Safety Program, the Trauma Registry database provides information for analysis and evaluation of the quality of care rendered to patients in North Carolina. The 17 hospitals that participate (Fig. 2, below) in the Registry collect more than 100 data items on each patient who is admitted to the hospital, transferred out of the hospital or dies in the Emergency Department with a trauma-related diagnosis. The Registry is guided by the Trauma Registry Task Force, a user group of trauma registrars, nurse coordinators, and trauma service directors from across the state. The collegial relationship developed by this group has helped competing medical centers cooperate for the benefit of the citizens of North Carolina. The Trauma Registry now uses computer software developed by the National Trauma Registry of the American College of Surgeons as its research tool to improve the care of injured patients and promote the creation of a comprehensive statewide trauma system.

review of the trauma system in North Carolina, which included the recommendations that the OEMS: 1) form a task force to address recommendations relating to emergency/acute care; 2) review legislation to assure it had the authority to designate trauma centers and assist in developing a state trauma system; 3) develop a state trauma system based on the existing injury data resources and epidemiology for NC; 4) coordinate all available resources to ensure that the state's most severely injured patients are taken to trauma centers; and 5) develop prehospital triage, interhospital transfer, and air medical trauma guidelines.<sup>3</sup>

Dr. George Johnson, chair of the State EMS Advisory Council, convened a trauma system task force, and charged it with developing a statewide trauma system. In November 1992, the Trauma System Task Force submitted its final report, calling for: 1) a standardized nomenclature for the trauma system and the major trauma patient; 2) new legislation to enable development of a statewide trauma system; and 3) the trauma system to remain voluntary and inclusive. As a result of

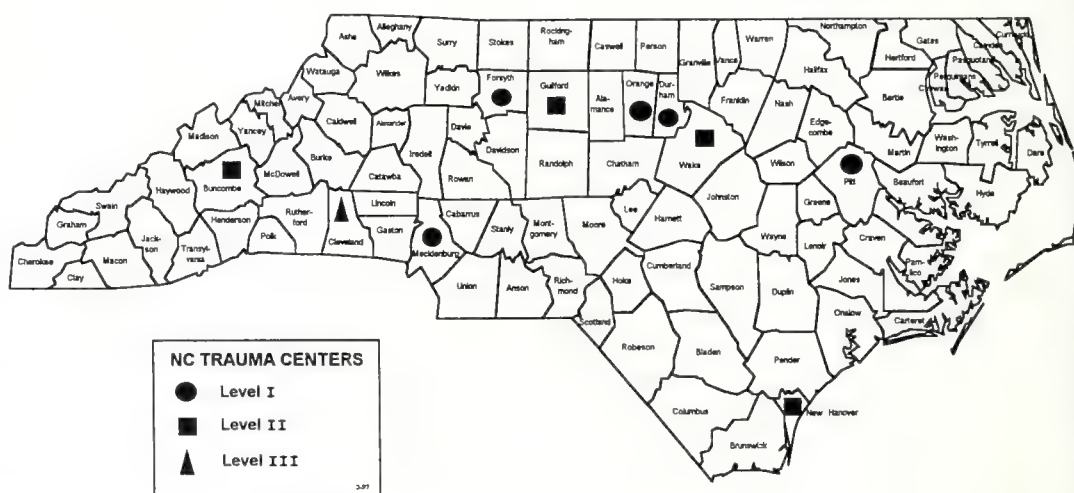


Fig 1: Locations of the designated trauma centers in North Carolina

## EMS in NC: A Timeline

In 1990, OEMS, using funds solicited from the NC Governor's Highway Safety Program, commissioned the National Highway Traffic Safety Administration to conduct a comprehensive assessment of emergency medical services in North Carolina. In July 1990, the OEMS received the

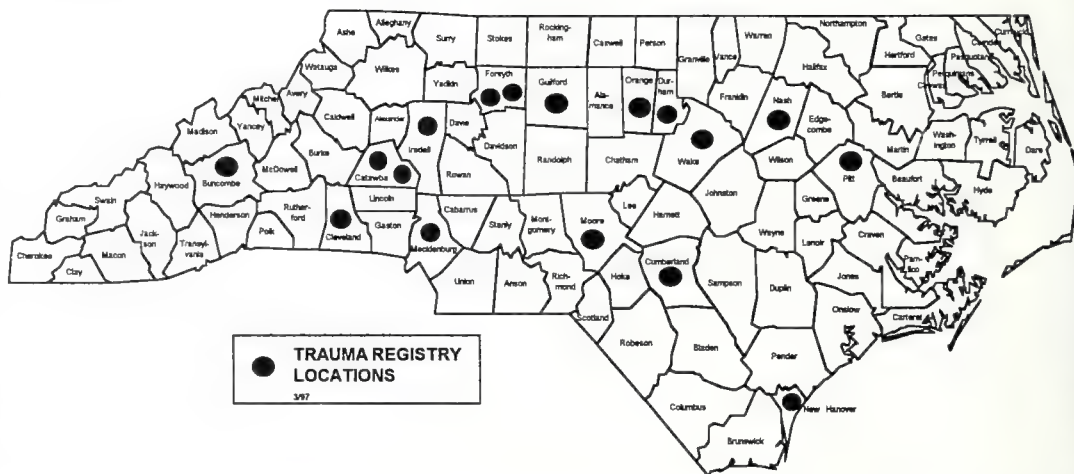


Fig 2: Locations of hospitals participating in the NC Trauma Registry

these recommendations, the Trauma System Act of 1993 was passed by the NC Legislature.

The Trauma Systems Task Force was then reconvened and charged with further duties: to update trauma center criteria and trauma designation processes and enforcement procedures, and to design the state trauma system. After two years, the Task Force drafted a set of rules, which were revised after input from each acute care hospital in North Carolina, from out-of-hospital services, and from other interested parties, including professional health care organizations, and three public meetings (held in March 1996). The proposed rules specified three levels of trauma centers (based on recommendations from the American College of Surgeons), the processes to be followed for initial and renewal designation, related enforcement procedures, and the basic design for an inclusive state and regional trauma system.

The basic building blocks of the proposed new trauma system was to be the Regional Advisory Committees (RACs), groups representing trauma care providers and communities that would be affiliated with a Level I or II trauma center. RACs would plan, establish, and maintain a coordinated regional trauma system. Each hospital would choose its RAC affiliation, and the RAC would then implement prehospital triage and air medical protocols, and transfer agreements and regional plans for education, training, prevention, and quality assessment. In addition, as initially envisioned, a "minimum data set" from each facility would flow to the designated trauma center, be processed and then transmitted to the state trauma registry. The data set would permit the registry to collect truly statewide data on injury, and participating hospitals could use the aggregate data as a benchmark for quality assurance activities and outcome measures.

In June 1996, in accordance with the state's guidelines, cost projections were developed to cover operation of the trauma system for its first five years. This included costs to be incurred by the state and the state's providers of trauma care, and costs for the expanded trauma registry. Since no state funds could be identified, enactment of the rules could not take place during the 1997 legislative session. Subsequently, the rules have been revised to exclude the need for additional state funding. This should facilitate its approval in the 1998 legislative session, but the "minimum data set" requirements were sacrificed, and this will have considerable negative impact on the ability of the trauma registry to acquire truly statewide benchmark data.

The revised rules were submitted to the NC Medical Care Commission, which has statutory authority of review and whose approval begins the formal rule-making process. On March 14, 1997, the Commission agreed to proceed with the formal rule-making process, allowing the proposed rules to be submitted to the Department of Human Resources, Legal Affairs Office. Currently, the State Office of Budget and Management is reviewing the financial impact of the revised rules. Once approved, the package will be published in the North Carolina Register, a public hearing will be held (probably in September

1997), revisions made, and final approval sought from the Medical Care Commission. The next step would be submission to the Rules Review Commission in fall 1997; then, if the rules pass all checkpoints, they go to the Legislative Oversight Committee in May 1998, and become effective, at the earliest, in August 1998.

What will the product be in summer 1998 after nearly two decades of development? We anticipate that North Carolina will have a statewide framework on which to build an exemplary system of care for the state's injured patients; that it will be inclusive and yet adaptable to the changing alliances, affiliations, and mergers that will shape the future of health care; that it will have a set of common triage, transport, and treatment protocols formulated by regional consensus; and most importantly, that the system will improve primary, secondary, and tertiary injury prevention. The plague of injury cannot be eradicated, but its impact on the citizens of North Carolina can be minimized by optimizing care for the trauma patient. □

## References

- 1 National Safety Council: Accident Facts, 1995 ed., pp 2-12.
- 2 Resources for Optimal Care of the Injured Patient: 1993; Committee on Trauma, American College of Surgeons, pp 17-28.
- 3 An Assessment of Emergency Medical Services, prepared by the National Highway Traffic Safety Administration Technical Assistance Team, pg. 22-23.

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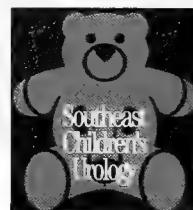
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# Disaster Response in North Carolina

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Major disasters are rare events in the United States.<sup>1</sup> As a result, most of us give little thought to disaster preparedness and planning. Dr. Auf de Heide<sup>1,2</sup> says that the public is apathetic about disasters because they believe that "it will not happen here." Recent events in our state show that disasters can and do happen, and that the medical profession needs to actively participate in the planning for and response to disasters. In this article we review basic principles of disaster management, organization and structure of disaster response in North Carolina, and discuss how physicians can become more involved in disaster activities.

## Disaster Basics

Disasters can be either human-made or natural; they can be limited in scope or large scale; they can injure large numbers of persons (multiple casualty incidents) or affect property only. Most recent disasters in North Carolina have not produced numerous injuries or deaths. In fact, very few events in the US produce more than 1000 casualties. In other areas of the world, however, large numbers of injuries and deaths are common.

Disasters can be divided into phases. 1) The *pre-disaster phase* refers to the time when planning, training, and preparation for response take place (we are now in a pre-disaster phase). This is the most important phase, because the decisions made have tremendous effect on later phases of disaster management. 2) The *pre-impact phase* occurs between the warning of the impending event and its actual impact. In this phase, activities such as evacuation, mobilization of responders, and notification of threatened populations take place. Whether this phase can be defined depends on the type of disaster. 3) The *impact phase* refers to the disaster itself. 4) The *response or emergency phase* follows impact. In this phase, resources and personnel are brought to the impact area to mitigate the effects of the disaster. Response may last from hours to weeks, depending on the type and scope of the disaster. 5) The final, or *recovery phase*, refers to restoring the community to the pre-disaster state.

Disasters are best described in terms of resources. We may say that a disaster occurs when the demand for resources exceeds those available. In a disaster, the operative premise for patient care is: do the greatest good, for the greatest number, with the least depletion of resources. This stands in stark contrast to our usual practice of doing everything that we can for every patient.

One model of disaster response envisions mobilizing large numbers of medical personnel in an all-or-nothing approach. This may work for some mass casualty incidents, but it is not the most effective model. Disasters can no more be treated as "large emergencies" than children can be treated as small adults. Disasters are different. Medical care resources that are normally available may be out of action (for example, how can a community provide medical care after a tornado has destroyed the hospital?). Furthermore, normal communication resources may be disrupted. Personnel may need to perform tasks outside their usual scope. Agencies that do not normally interact may have to work together on a common task. Disasters respect neither jurisdictional nor geographic boundaries. Many disasters are long-term events, with operations running for days or even weeks. These and many other factors combine to create an operational environment distinctly different from routine emergency response.

Members of the medical community often behave as if provision of medical care is the most important aspect of disaster response. The "CNN Syndrome"—graphic pictures of injured victims broadcast into our living rooms—only reinforces this perception. In reality, direct medical care is only one aspect of the response; provision of safe, reliable drinking water, shelter, and food may be more important, if less glamorous, than sending mobile hospitals and affiliated personnel.

Adequate response to a disaster depends on the integrated effort of public agencies, emergency medical services personnel, physicians, hospitals, and the public. Equipment, training, and planning incur costs that should be underwritten equitably by those the response plan seeks to serve.

Proper response requires time and cooperation. Because

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disasters are rare events, the public and government are often apathetic. Too often we hear: "It won't happen here!" "There is no money for this." "I can't take part in the drill today; I have patients to see." We also run into the "Paper Plan Syndrome"<sup>2</sup>—a plan is compiled and written, but training is ignored. This gives a false sense of security, because there is a "plan" although it has never even been tried before the disaster strikes. Lack of familiarity and practice then complicate an already stressful situation. Or we may find that separate agencies have separate and uncoordinated plans. No single agency has the resources or expertise to manage disasters by itself. Poor communication in both the planning and response phases increases confusion. Only an integrated plan, accompanied by training and practice, can provide proper response for local, statewide, or national disasters.

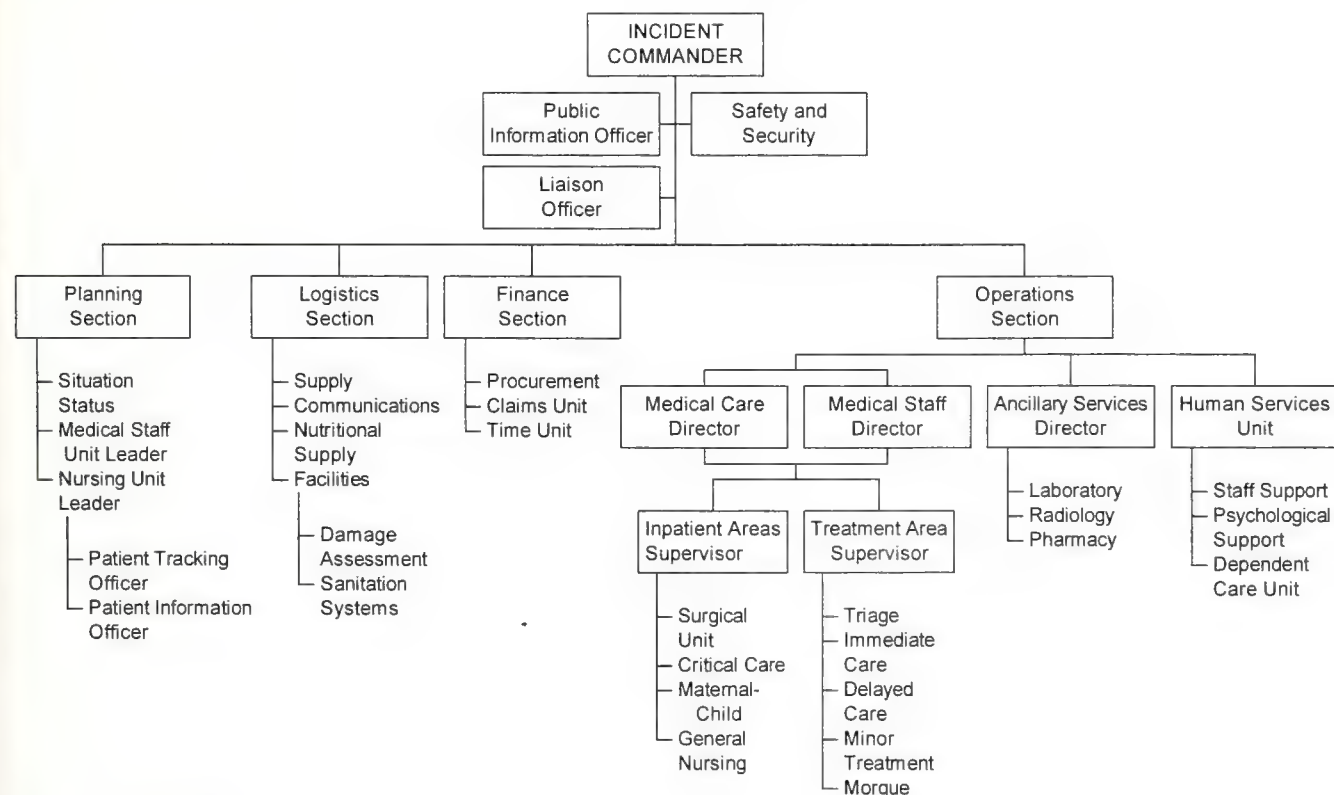
## Hospital Disaster Plans

Most medical personnel are familiar with the hospital disaster plan. The Joint Commission on Accreditation of Healthcare Organizations requires that all hospitals have such a plan and that it be tested twice a year. The testing is often carried out without involving other agencies that would be involved in an actual event.<sup>3</sup> Since hospital plans outline responses to anticipated events, they should involve agencies with which the hospital will interact during a disaster.

Hospital disaster plans usually have two components: 1) an external plan that addresses management of victims of an event in the community; 2) an internal plan that concerns events within the facility (such as fire, storms, etc.). Hospital disaster plans should include provisions for evacuation and for operation when the physical plant is damaged.<sup>4,5</sup> The hospital plan should: 1) define how it will be activated; 2) establish a command center and a chain of command; and 3) establish triage and treatment areas, a personnel pool, internal and external communications, supply, and logistics.

The command structure of the hospital plan should be based on the Incident Command System (ICS; Figure 1, below)<sup>6,7</sup> used by emergency response agencies. First developed in 1972 to coordinate multiple agencies fighting wildfires, the ICS is extremely flexible and proven. It is based on the idea of management by objective and is task-oriented, not personnel-oriented. Plans do not designate particular persons to carry out particular tasks because those individuals may not be available during a disaster. For example, under ICS, specific tasks are not assigned to the emergency department medical director, but to any on-duty physician or experienced nurse. A specific variation of ICS designed for hospitals (Hospital Emergency Incident Command System or HEICS) is available from the Orange County (CA) Health Care Agency.<sup>8</sup>

A full discussion of the principles of triage is beyond the scope of this article, but it is important that physicians understand basic triage because it applies to all levels of patient care



**Fig 1:** Hospital Incident Command System (ICS). Adapted from HEICS: Orange County (CA) Health Care Agency<sup>8</sup>



during a disaster. Standard triage protocols exist, and their use simplifies the process. As a general principal, physicians need to be actively involved in their hospital's disaster planning activities. Physician knowledge of and familiarity with the disaster plan and participation in drills are essential to its smooth and effective operation.

## Community Disaster Plans

Hospital disaster plans must be integrated with local or community disaster plans. Each county has an emergency management director or coordinator to develop and coordinate the "local" disaster plan—a comprehensive, all hazard plan that should address realistic dangers to the community and list available resources. The plan delineates lines of communication, notification and activation, and procedures for establishing a command center (Emergency Operations Center, or EOC). Senior local government officials should be involved both in making community disaster plans and at the EOC (when activated) because they may need to order evacuation or the expenditure of funds. The plan should outline how to request assistance from adjacent jurisdictions (through individual mutual-aid agreements) and from the state (through the state Division of Emergency Management).

Responses to disasters involving hazardous materials (HAZMAT) is usually handled at the community level. The Community Right to Know Act establishes Local Emergency Planning Committees to help with the planning for HAZMAT responses. These committees comprise response personnel, government officials, HAZMAT producers, and representatives from the public and medical communities.

## Disaster Response at the State Level

North Carolina's Emergency Operations Plan can mobilize the state's considerable assets in a coordinated response to disasters, and continue that support through the recovery phases. The Department of Crime Control and Public Safety directs and coordinates the state response through its Division of Emergency Management. The Division activates a State Emergency Response Team (SERT) in response to a local request or in anticipation of an event such as a hurricane. The director of the Division of Emergency Management serves as SERT leader and oversees all state response activities. Personnel from other state agencies make up the remainder of the SERT staff, giving the SERT the ability to access and allocate state resources. Area coordinators from the Division of Emergency Management provide information about the nature of the event and the response needed to the State EOC in Raleigh, which assesses the situation and mobilizes the necessary resources from state agencies or from local agencies outside the impact area. The EOC also informs the Governor and other senior officials of the situation.

During disasters, designated state agencies shift from their normally assigned tasks to response activities predefined under the state Emergency Operations Plan. For example, the State Office of Emergency Medical Services (OEMS), which normally oversees EMS agencies, personnel and training, assumes responsibility for coordinating transport ambulances. Requests from the disaster area are sent to the EOC where the OEMS representative mobilizes units from outside the impact area and directs them to the staging area for deployment. The Department of Highways, usually designing and building roads, might be asked to assess structural damage or remove debris. This dual role approach allows for a timely and cost-effective response by the state.

In addition to governmental and local resources, the state also uses nongovernmental organizations as part of the response. The American Red Cross establishes and staffs shelters for evacuees, the Special Operations Response Team (SORT) provides field disaster medical response, and the NC Baptist Convention operates field kitchens. These agencies and many others mobilize their resources in response to a request from SERT.

Besides coordinating response activities after a disaster, the Division of Emergency Management oversees disaster preparedness and planning. It coordinates disaster recovery (including cleanup, restoration of essential services, and direct support of businesses and affected individuals) so that the impacted area can return to "normal."

## Federal Response to Disasters

Should damage from a disaster exceed the capacity of the state to respond, or if damage extends across multiple states, federal resources can be summoned. Under the Stafford Disaster Relief and Emergency Assistance Act, the President can order federal agencies to assist local and state relief efforts to "save lives and to protect property and public health and safety."<sup>9,10</sup> In order for the President to designate a "Federal Disaster Area," a request must be received from the governor of the state. Provisions of the law do allow other state officials to request help and, in medically related matters, the state Public Health Director may request assistance from the US Public Health Service.

The lead federal agency for disaster management is the Federal Emergency Management Agency (FEMA), successor to the Civil Defense Agency. FEMA's original role was the coordination of planning and regulation, with some mitigation activities. After Hurricane Hugo (1989) and several other major incidents, FEMA's response role was expanded, and it became more proactive, rather than reactive. The size of the federal government gives it immense resources with which to respond, but also creates an inertia that slows the rate of response. That inertia, coupled with the time required to gather information so that the governor can ask the President for assistance, has led to the perception of a slow and ineffective federal response. To address this (and other problems identified after Hugo and the

Loma Prieta earthquake), the Federal Response Plan of 1992 was created. This plan organizes all Federal Response activities into 12 Emergency Support Functions (ESF) (Table 1), each under the direction of a primary agency. ESFs important to medical care include ESF-8 (health and medical), ESF-6 (mass care/sheltering) and ESF-9 (urban search and rescue). FEMA coordinates the overall plan and leads the disaster response. The Department of Defense provides logistic and transport support for all agencies. The US Forest Service, because of its experience with wildfire suppression and communications capabilities, provides technical and communication support.

Following activation of the disaster plan, a Catastrophic Disaster Response Group is created to set policy and coordinate response. The Emergency Support Team at FEMA implements these policies. An EOC is established at each agency charged with directing an ESF. FEMA also establishes a Regional Operations Center staffed by an Emergency Response Team (ERT). An Advance Emergency Response Team (ERT-A) is sent to the disaster area. The ERT-A establishes a Disaster Field Office (DFO) to serve as the forward coordinating area for all federal activities. The DFO is run by a Federal Coordinating Officer who is appointed by the President and the FEMA director to oversee the disaster response. The DFO handles requests from the state for federal assistance and directs response activities of federal assets deployed to the disaster. The federal presence, although large, exists only to assist the state, which remains responsible for the management of the event. Federal responders are assigned tasks based on requests received by the DFO from state officials. Mobilizing these resources and moving them into the disaster area requires time and accurate information about the event and its impact. This information may take several days to acquire, particularly if communications are disrupted, and this can delay the deployment of response assets.

When disasters can be anticipated (floods or hurricanes, for example), components of the disaster response plan can be activated and certain key assets pre-staged outside the anticipated impact area. An ERT-A is deployed into the predicted strike area, to provide early assessment of damage and needs after the event. State agencies use a similar approach. The net result is a reduction in the time for help to arrive.

For events that cannot be anticipated, such as earthquakes, FEMA maintains 25 Urban Search and Rescue Task Forces around the country. These self-contained teams began as local resources for the fire service; they are equipped and trained for extremely specialized and hazardous response activity. They can be mobilized and moved into the impact area within hours—a rapid and effective response that was demonstrated during the Oklahoma City bombing. North Carolina does not

**Table 1. Federal response plan: emergency support functions**

Function	Lead agency
1. Transportation	Department of Transportation
2. Communications	National Communication Agency
3. Public works/engineering	US Army Corps of Engineers
4. Firefighting	Department of Agriculture
5. Planning/Information	FEMA
6. Mass care	American Red Cross
7. Resource support	General Services
8. Health and medical services	Department of Health and Human Services
9. Urban search and rescue	FEMA
10. Hazardous material	Environmental Protection Agency
11. Food	Department of Agriculture
12. Energy	Department of Energy

currently have such a task force, but two are based in Virginia should the need arise here.

ESF-8 (health and medical) is responsible for more than just care of the injured after a disaster. It does provide care and mobilize personnel and supplies, but it is also responsible for victim evacuation, mental health assessment, water quality, waste management, mortuary services, vector control, and chemical and biological monitoring. The Health and Human Services agency assigned this duty is the National Disaster Medical System (NDMS). NDMS began in the early 1980s as a partnership between civilian hospitals, the Department of Defense, the Public Health Service, and the Department of Veterans Affairs to supplement hospital beds available in the military hospital system. The role of NDMS was expanded in 1984 to allow use of those beds for a major civilian disaster.

Also developed in 1984 were Disaster Medical Assistance Teams (DMATs). Each team consists of civilian volunteers (under a local sponsor) who are trained to provide basic medical care under austere conditions. Following a disaster, DMATs process casualties evacuated from the disaster area and send them to participating hospitals. DMATs are deployed into the impact area to augment or replace existing medical services damaged by the disaster. When deployed, the team personnel become temporary employees of the Public Health Service, which solves the problems of licensure and liability.

DMATs are 35-person, self-sufficient medical units capable of caring for up to 250 patients per 24 hours. They must be ready to deploy within 12 hours of notification and carry supplies for up to 72 hours of operation. Resupply of the teams is carried out by the Department of Veterans Affairs. Teams are typically in the field for seven to 14 days before relief. Self-sufficiency is key since there may be no support for team operations in the impact area. First used after Hurricane Hugo, DMATs cared for victims of Hurricanes Andrew, Iniki, Marilyn, and the Northridge earthquake. Contrary to popular belief, the teams are not usually inundated with trauma victims. Most of the patients treated have routine medical problems seen in everyday practice,<sup>11</sup> but the DMAT teams prevent overloading of existing medical facilities on the periphery of the impact area and enable those facilities to care for the more severe patients.



There are currently 61 DMATs (including one mortuary team) in the US. Twenty-one are designated as Level 1 teams because they meet all the outlined criteria. DMAT NC-1, the Special Operations Response Team based in Winston-Salem and Charlotte, was begun in 1982 to meet North Carolina needs for disaster medical care and to cover mass gatherings and hazardous material events. The SORT became a DMAT in 1989. It has more than 160 volunteers from the medical community, EMS, fire service, and law enforcement. Because of the team's HAZMAT capability, it serves as primary response unit for nuclear, biological, and chemical incidents.

SORT's assets include an 80-bed, tractor trailer-mounted field hospital; a mobile emergency department; a mobile communications center; a HAZMAT unit; and a 15-person, rapid response advance medical team (ADE unit). SORT's disaster response capability can be activated within six hours of a federal request and within two hours of a state request. The HAZMAT unit responds immediately upon activation. SORT serves not only as a federal resource, but also a local, regional, and state response agency.

SORT has recently developed a Special Needs Shelter program that provides for special needs patients (those residing in nursing facilities or group homes, those on home oxygen or ventilators, and those receiving home IV therapy) within the disaster area. The usual shelters established by the American Red Cross provide for basic needs of displaced people who are capable of self care. The Red Cross routinely does not provide care for special needs patients. Without Special Needs Shelters, special needs patients are sent to hospitals, overloading already stressed facilities. Integrating home care suppliers, nursing facilities, emergency response agencies and medical facilities, the Special Needs Shelter Program allows care of this population without overtaxing conventional shelters or medical facilities. A key aspect of the program is "sheltering in place," which seeks to avoid the evacuation of existing special needs facilities by providing nonmedical services such as power, water, heat, etc., to affected facilities, allowing residents to remain there. If evacuation is needed, a special needs shelter is established and staffed by volunteers and DMAT personnel. SORT is working with state officials to extend the concept statewide.

## Involvement in Disaster Planning and Response

Disaster response begins at home. Physician input and participation in hospital disaster planning and training is a key component of effective plans. At the community level, physicians can participate in the training of emergency response personnel or consider serving on the Local Emergency Planning Committee. Their expertise and knowledge of medical needs within the community are of benefit in establishing programs such as special needs shelters. Voluntary agencies, such as the Red Cross or religious and community-based organizations, need volunteers to help with response and preparation activities. Of course, these agencies depend on donations to support their work and physicians can provide support at this level. Participation, either personally or financially, is extremely rewarding.

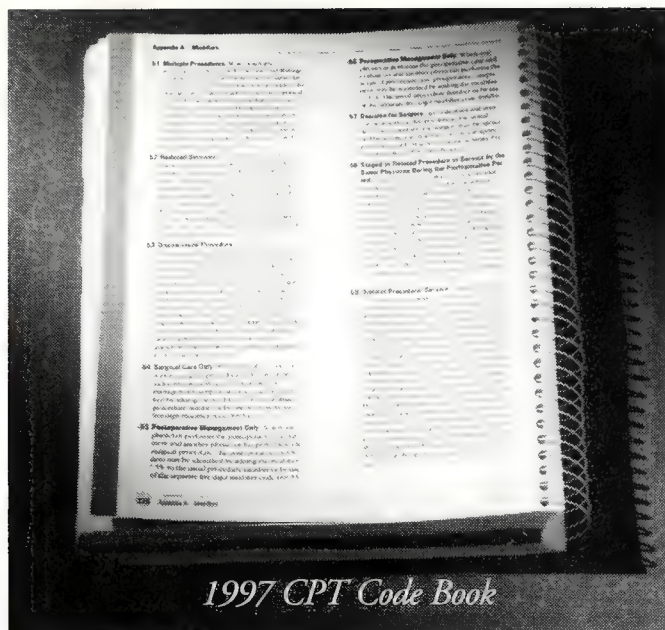
After a major disaster, many medical personnel come to the disaster site, to volunteer their services. After Hurricane Andrew, several medical societies from counties surrounding Dade County, Florida, undertook the task of coordinating these volunteers.<sup>12</sup> By credentialing and categorizing personnel, these societies created an efficient personnel pool and freed up personnel at both operational sites and the EOC. Component societies of the NC Medical Society could undertake this task should a disaster strike their portion of the state.

Physicians who want a more active role in disaster response should contact organizations such as SORT, which always need volunteers. In addition, the NC Medical Society maintains a list of physicians willing to volunteer during a disaster. This information is provided to the NC OEMS, which can call on these physicians, should they be needed. For more information, contact the NC Medical Society (800/722-1350 or 919/833-3836). □

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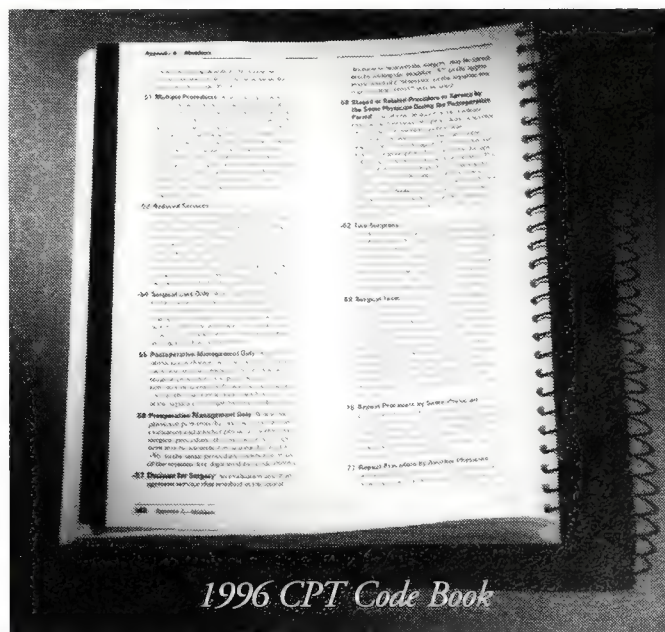
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# Air Medical Transport Services in North Carolina

Michael A. Gibbs, MD, FACEP, and Cathie McDonald

Medical transport by air is a vital component of contemporary emergency medical care. Many critically ill and injured patients need rapid transport from community hospitals to regional tertiary care centers. These patients benefit from the speed of transport as well as the advanced care provided by highly trained air medical personnel.

The first civilian helicopter program was established at St. Anthony Hospital in Denver, Colorado in 1972. Since then air medical transport systems have proliferated rapidly. Today the nation has more than 200 hospital-based helicopter programs, six of which currently operate in North Carolina (Table 1, below, Figure 1, next page).

The air medical transport industry has developed to the point that it can transport patients requiring complex life support, support advanced lifesaving procedures, provide subspecialty transport teams, and transport patients across international borders. Coincident with its rapid maturation, the industry has come under the watchful eye of managed care. In the age of capitated health care delivery, the cost of patient transport is often a significant issue. There are growing pressures on physicians to justify the need for air transport of patients if less costly alternatives are available.

Physicians contemplating air transport may raise questions about system access, logistics, and clinical care. An understanding of these issues will ensure that the transportation of patients by air is appropriate, timely, and safe. In this article we address the following questions: Which patients benefit from air transport? How should air transport be initiated? How should patients be prepared for air transport?

## Which Patients Benefit From Air Transport?

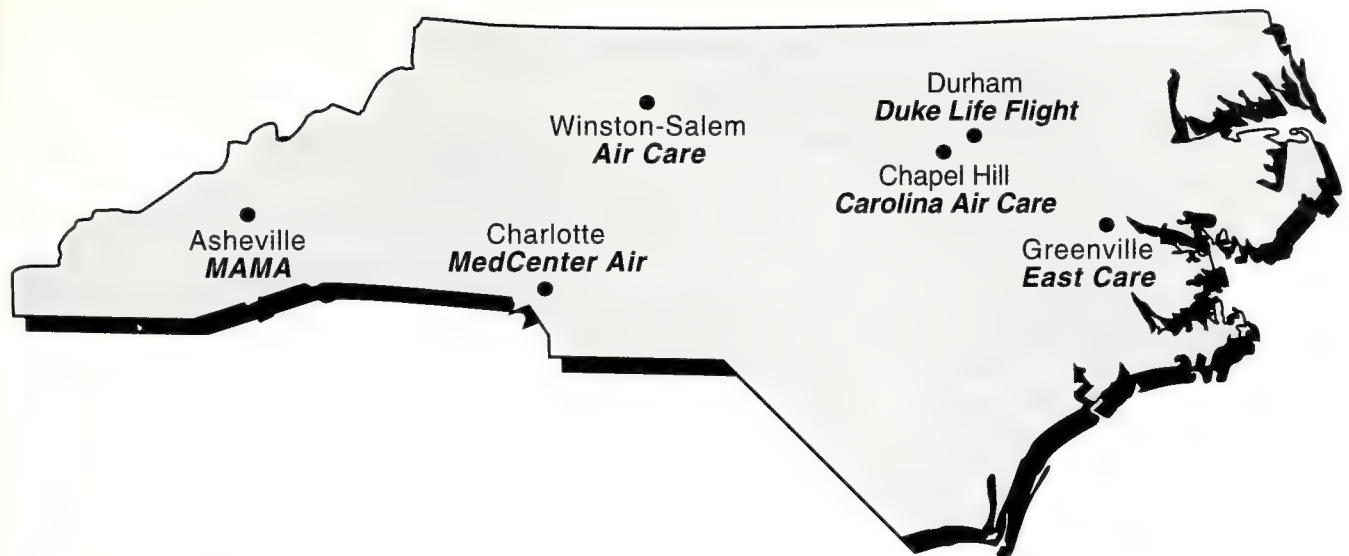
In order to make rational decisions about the use of air medical transport, one must understand its advantages compared to

ground transport. In general, air medical transport should be used when the time required to transport a patient to definitive care by ground ambulance is excessive (that is, the time delay may result in adverse consequences), or when hospitals lack the resources to provide immediate care for certain patients with time-sensitive conditions. Patients whose critical care needs during transport exceed the capabilities of local emergency medical services are candidates for air transport between hospitals. Highly trained flight clinicians can provide neonatal and pediatric care, obstetrical care, advanced cardiac and trauma life support, burn care, advanced airway management, ventilator management, and invasive monitoring. Other factors that may influence the decision to use air rather than ground transport include: 1) the distance to be covered; 2) geography,

**Table 1. NC's air medical transport programs**

<b>Asheville</b>	<i>Mission Air Medical Ambulance</i> (800) 962-4354 (Mission Memorial Hospital)
<b>Chapel Hill</b>	<i>Carolina Air Care</i> (800) 247-6264 (UNC Hospitals)
<b>Charlotte</b>	<i>MedCenter Air</i> (800) 421-9195 (Carolinas Medical Center)
<b>Durham</b>	<i>Duke Life Flight</i> (800) 362-5433 (Duke University Hospital)
<b>Greenville</b>	<i>EastCare</i> (800) 672-7878 (University Medical Center of Eastern Carolina-Pitt Co.)
<b>Winston-Salem</b>	<i>AirCare</i> (800) 336-6224 (North Carolina Baptist Hospital)

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**Fig 1:** Air medical programs in North Carolina

weather, and traffic conditions; 3) availability and capability of local EMS services; 4) cost; and 5) the nature of the patient's condition.

Some integrated medical transport programs offer different modes of transport (helicopter, fixed-wing aircraft, or critical-care ground ambulances) staffed by the same skilled critical care teams. "Mobile ICU" ambulances can provide less costly ground transport for patients who require critical care services but whose condition does not mandate the time-savings provided by air transport. We discuss here specific recommendations for air transport of trauma, cardiac, medical/surgical, burn, and pediatric patients.

**Air transport of trauma patients.** About 10% of injured patients can benefit from the specialized services provided at regional trauma centers.<sup>1</sup> Air transport from crash scene to trauma center allows stabilization and definitive treatment within the "golden hour" after injury, and decreases morbidity and mortality.<sup>2-5</sup> No well-established body of literature delineates the criteria for dispatching a helicopter to an emergency scene, but consensus-based guidelines have been published (Table 2, at right).<sup>6</sup> These guidelines assure that the most seriously injured patients will be rapidly transported to a trauma center; they err on the side of sending too many patients rather than too few.

Air transport is often used for the interhospital transport of severely injured patients. The American College of Surgeons has published guidelines for interhospital air transport of trauma patients to regional trauma centers (Table 3, next page).<sup>7</sup>

**Air transport of cardiac patients.** Early reperfusion of ischemic heart muscle saves both lives and quality-of-life in patients with acute myocardial infarction. In many cases, urgent transfer to a

**Table 2. Guidelines for air-transport of trauma patients from the scene to a trauma center\***

<b>Physiology:</b>	•Glasgow Coma Scale	<10
	•Revised Trauma Score	<12
	•Systolic blood pressure	<90 mmHg
	•Heart rate	<60 or >120 bpm
	•Respiratory rate	<10 or >35 bpm
	•Age	<12 or >55 years
<b>Anatomy:</b>	•Penetrating injuries to the head, neck, torso	
	•Crush injury to the torso	
	•Two or more proximal long-bone fractures	
	•Major pelvic fractures	
	•Proximal amputations	
	•Spinal cord injury	
	•Major burns	
<b>Mechanism:</b>	•Near drowning	
	•Ejection from automobile	
	•Vehicle roll-over with unbelted passenger	
	•Vehicle striking pedestrian at >10 miles/hour	
	•Extrication time >20 minutes	
	•Fall more than 15 feet	
	•Motorcycle victim ejected at >20 miles/hour	
	•Multiple victims	

\*Adapted from <sup>6</sup>

hospital capable of performing transcatheter angioplasty or coronary artery bypass surgery is essential. A growing body of literature demonstrates that cardiac patients can be transported safely by air while receiving thrombolytic therapy, antiarrhythmic agents, vasopressors, transcutaneous or transvenous cardiac pacing, and intra-aortic balloon-pumping.<sup>8-11</sup> Whenever possible, thrombolytic therapy should be started *before* patient transport to avoid any delay to reperfusion.



**Air transport of medical/surgical patients.** Patients with respiratory failure, status epilepticus, severe hypothermia, acute derangements of metabolism, toxic ingestion, or septic shock, and a long list of other medical conditions may benefit from rapid air transport (Table 4, at right).<sup>12-14</sup> Potentially life-threatening, time-dependent surgical emergencies include leaking abdominal aortic aneurysms, brisk gastrointestinal hemorrhage, aortic dissection, and intracranial mass lesions. The decision to use air transport must be made in the context of each patient's condition and the likelihood of improvement if moved quickly to a hospital with more services.

**Air transport of obstetric patients.** Air medical transport of pregnant women is generally safe for both mother and fetus. Indications for air transport to a tertiary care center include abnormal fetal lie, uncontrolled maternal diabetes, eclampsia or severe preeclampsia, placenta previa with active bleeding, abruptio placenta, premature rupture of membranes, and other severe maternal illnesses. Because of the hazard of emergency in-flight delivery, it is not advisable to transport patients in advanced labor (cervical dilatation >4 cm).<sup>15</sup>

**Air transport of burned patients.** Ground transport is appropriate for most burned patients, but air transport is indicated when there is severe inhalation injury with respiratory failure, electrical injuries with myocardial or respiratory depression, or other major injuries.<sup>16</sup> Burn patients transported by air require special attention to fluid balance and temperature control because of low ambient humidity and temperature in the aircraft.<sup>17</sup>

**Air transport of neonatal and pediatric patients.** Air transport is appropriate for transport of patients to regional neonatal and pediatric intensive care units. Respiratory failure, major trauma, neurologic disorders, sepsis, congenital heart disease, and acute metabolic conditions are the usual indications.<sup>18</sup> Guidelines published by the American Academy of Pediatrics closely resemble those developed for adult medical/surgical/trauma patient (Table 4, above).<sup>19</sup>

**Table 3. Guidelines for interhospital air transport to a trauma center\***

<b>Spinal cord injury</b>	
<b>Head injury</b>	<ul style="list-style-type: none"> <li>•Penetrating injury of depressed skull fracture</li> <li>•Glasgow Coma Scale &lt;13, or deteriorating</li> <li>•Lateralizing signs</li> <li>•Open injury with or without cerebrospinal fluid leak</li> </ul>
<b>Chest</b>	<ul style="list-style-type: none"> <li>•Wide mediastinum by radiography</li> <li>•Major chest wall injury</li> <li>•Cardiac injury</li> <li>•Patients who may require protracted ventilation</li> </ul>
<b>Pelvis</b>	<ul style="list-style-type: none"> <li>•Unstable pelvic ring disruption</li> <li>•Pelvic ring disruption with evidence of shock</li> <li>•Open pelvic fractures</li> </ul>
<b>Multisystem injury</b>	<ul style="list-style-type: none"> <li>•Severe facial injury with head injury</li> <li>•Chest injury with head injury</li> <li>•Abdominal or pelvic injury with head injury</li> <li>•Burns with associated injury</li> <li>•Multiple fractures</li> </ul>
<b>Secondary deterioration</b> (late sequelae)	<ul style="list-style-type: none"> <li>•Mechanical ventilation required</li> <li>•Sepsis</li> <li>•Single or multiple system failure</li> <li>•Major tissue necrosis</li> </ul>
<b>Comorbid factors</b>	<ul style="list-style-type: none"> <li>•Age &lt;5 or &gt;55 years</li> <li>•Known cardiorespiratory or metabolic diseases</li> </ul>

\*Adapted from<sup>7</sup>

**Table 4. Guidelines for air transport of the medical/surgical patient\***

<b>Medical</b>	<ul style="list-style-type: none"> <li>•Respiratory failure requiring pulmonary intensive care</li> <li>•Upper airway obstruction</li> <li>•Need for acute hemodialysis</li> <li>•Septic shock with hemodynamic compromise</li> <li>•Life-threatening infectious process</li> <li>•Poisoning requiring intensive consultative care</li> <li>•Need for hyperbaric therapy</li> <li>•Severe hypothermia or hyperthermia</li> <li>•Severe metabolic derangements</li> <li>•Status-post cardiopulmonary arrest</li> </ul>
<b>Surgical</b>	<ul style="list-style-type: none"> <li>•Gastrointestinal bleeding with hemodynamic compromise</li> <li>•Neurosurgical emergency</li> <li>•Suspected dissecting thoracic aorta</li> <li>•Leaking abdominal aortic aneurysm</li> </ul>

\*Adapted from<sup>13</sup>

**Contraindications to air medical transport.** In general, air transport should only be used to provide rapid access to a higher level of care; air transport for convenience is strongly discouraged. Patients whose cardiopulmonary arrest persists despite appropriate resuscitative efforts should not be transported.<sup>20-24</sup>

Air transport of combative or violent patients is contraindicated because their behavior poses a risk to the safety of the crew.

## How Should Air Transport Be Initiated?

The physician caring for a severely ill or injured patient does not usually have the time to make multiple phone calls or provide a lengthy patient report. Flight dispatchers are trained to perform a concise interview and collect pertinent clinical information. If no physician has been contacted at the accepting facility, physicians providing on-line medical control should be able to arrange acceptance and facilitate contact with the appropriate subspecialist. Physician-to-physician contact is encouraged to ensure that essential clinical concerns can be passed on to flight personnel and the accepting medical team.

Unique to North Carolina is the way in which the six hospitals with medical helicopter service work together to assure that every patient in need has access to this service. Since 1986, these hospitals have met four times a year to discuss and address common goals and needs of patients. This relationship has led to uniform safety standards and a formal reciprocity agreement that allows one program to "back up" another's service. In most states, helicopter programs are fierce competitors; we are fortunate that in North Carolina our six programs work together.

## How Should Patients Be Prepared For Air Transport?

Preparation for air transport includes: 1) appropriate clinical stabilization, 2) communication with the accepting clinical care team, and 3) transfer of appropriate medical documents.

**Patient stabilization.** Air medical clinicians are skilled in the principles of patient assessment and stabilization. Nonetheless, the back of a helicopter is a relatively inhospitable place for treating unstable patients. Patients should be prepared properly before transport to avoid deterioration of the patient's condition

during transport. These steps include: 1) provision of a secure airway; 2) provision of appropriate intravenous access; 3) volume resuscitation and hemodynamic stabilization; 4) dysrhythmia management; 5) immobilization of the spine and extremities if suspicious for fracture; and 6) protection from hypothermia. If these interventions exceed the capabilities of the referring hospital, flight team clinicians can initiate these measures on arrival or during transport.

**Communication.** When transfer of a critically ill patient is imminent, nothing is better than physician-to-physician communication of the essential elements of the case. A brief dialogue with the physician providing on-line medical control will ensure the most appropriate mode of transport is used, that any specialized equipment necessary is made available, and that informed medical oversight is provided. The following information can should be made available: 1) patient's name, age, and reason for transfer; 2) name of the accepting physician; 3) most recent vital signs; 4) pertinent physical findings and diagnostic studies; 5) recent procedures; and 6) special requirements for transport.

**Transfer of information.** Copies of medical records (notes, orders, medications given, laboratory studies, ECG, radiographs, CT scans, cardiac catheterization films, etc.), consent forms, living wills, COBRA forms, and any other medicolegal documents important to the delivery of good medical care should always accompany the patient or be transmitted by facsimile prior to the patient's arrival at the tertiary center.

## Summary

Air medical transport is an important component of contemporary prehospital care for patients with time-sensitive conditions and those whose clinical needs exceed the expertise of local providers. Early contact with trained flight dispatchers facilitates air transport. Appropriate stabilization, effective communication, and transfer of medical documents ensure that transports are appropriate, timely, and safe. □

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**Notes**

**SUMMARY**  
Grade 2 talofibular ankle sprain - AUTHOR Robert A. Christopher

**NOTES**  
Echo Note Subjective Note Objective Note Assessment Note Plan Trendancy

**1: SUBJECTIVE**  
2: This patient presents today complaining of pain and swelling over the lateral left ankle, which has been present for the past few days  
3: These symptoms arose after a fall on an inverted left ankle. The patient noted immediate pain and swelling following this injury  
4: Ambulation markedly aggravates the pain and swelling. Over-the-counter analgesics have been only minimally helpful in alleviating these symptoms.  
5: these symptoms.

**6: OBJECTIVE:**  
7: Vital Signs: Systolic -120; Diastolic -80 Pulse -70; Resps -15; Temp -98.5; Weight -135; Height 65"  
8: Chest: The chest wall is not tender. It moves symmetrically with respiration. There are no chest wall masses or cutaneous lesions. The  
9: lungs are clear to auscultation and percussion. There are no rales, wheezes, or rhonchi detected. The heart sounds are regular. There  
10: are no gallops, murmurs, clicks, or rubs. The first and second heart sounds are normal. The PMI is not displaced or abnormally  
11: sustained, and there are no thrills.  
12: Abdomen: A four quadrant examination of the abdomen reveals no tenderness, masses, organomegaly, or cutaneous lesions. The bowel  
13: sounds are normal. There is no guarding, and no costovertebral angle tenderness. There is no distension or tenderness in the  
14: suprapubic region. There are no bruits noted.  
15: Musculoskeletal: Marked tenderness and soft tissue swelling is present over the lateral left ankle. The tenderness is significantly  
16: increased with inversion stress of the lateral ankle joint, but no significant laxity of this joint is noted on this examination. The remainder  
17: of the musculoskeletal exam is normal. Point bony tenderness over the ankle bones is not present.  
18: 19:

**20: ASSESSMENT:**  
21: 1 Grade 2 talofibular ankle sprain - left (ICD9-845.09)  
22: 22:

**23: PLAN: (CPT4-99214)**  
24: 2 Ice to be applied intermittently over the next 48 hours  
25: 3 Non-weight bearing with use of crutches for the next week, then begin range of motion and strengthening exercises  
26: 4 Ultram 50mg 1-2 tabs po qid prn pain #40 1 refill. The potential for GI side effects was discussed with the patient.  
27: 5 Return to clinic 2-3 weeks for reevaluation

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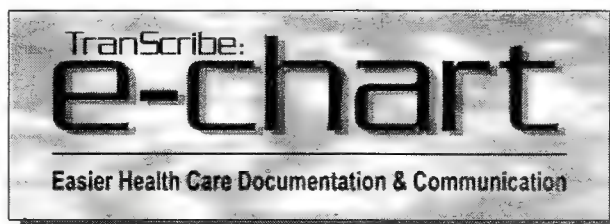
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# Managed Care Authorization for Emergency Department Services

## A Medical Risk to Patients, A Legal Risk for Doctors and Hospitals

Robert A. Bitterman, MD, JD, FACEP

Managed care has landed in North Carolina. At present 16% of our citizens are enrolled in managed care plans (MCP), and within three years this could reach 30%-40%.<sup>1</sup> One of the methods MCPs use to successfully cut health care costs is "prior authorization." This means the patient's primary care physician (PCP) or "gatekeeper" must give prior authorization for visits to specialists, the ordering of expensive diagnostic studies, or admissions to the hospital; otherwise the MCP will not pay for those services.

Now MCPs have taken aim at the high charges for care in hospital emergency departments (EDs), using the same prior authorization tactics to deny coverage for emergency care. In this article I address the adverse consequences of prior authorization for emergency services: the medical risks to MCP enrollees, and the legal risks to participating hospitals and physicians.

### Federal Law Governing Hospital Emergency Departments

A federal law, COBRA (Consolidated Omnibus Budget Reconciliation Act), governs the delivery of all hospital-based emergency care in the US.<sup>2</sup> Congress passed COBRA, also called the Emergency Medical Treatment and Active Labor Act (EMTALA), to prevent hospitals and physicians from inappropriately transferring ("dumping") indigent patients from private hospitals to municipal hospitals, or just denying emergency care to patients without insurance.<sup>3</sup> COBRA is essentially an antidiscrimination statute. Two sections regulate the gatekeeper/MCP prior authorization interaction with emergency departments:

1. "If any individual comes to the emergency department, the hospital must provide an *appropriate medical screening exam* (MSE) to determine whether or not an emergency medical condition exists."<sup>4</sup>
2. "A hospital *may not delay* provision of an appropriate medical screening examination or necessary stabilizing treatment...in order to inquire about the individuals method of payment or insurance status."<sup>5</sup>

These sections were originally intended to prevent hospitals from denying or delaying access to examination and treatment of medical emergencies because a patient lacked insurance or had inadequate insurance such as Medicaid. Today it is patients who are insured—but under managed care—who have trouble obtaining emergency care because the MCPs deny authorization for the emergency department visit. The following scenario—and the questions it raises—occurs every day in EDs across the country:

A managed care enrollee comes to the ED for examination and treatment. The patient is evaluated ("triaged") by a nurse to determine the nature and acuity of the complaint. If the nurse finds an emergency condition, the individual is immediately evaluated by an emergency physician; if there is no obvious emergency condition, then the patient's MCP is contacted for "authorization" *before* the patient is evaluated by a physician. The authorization process may take minutes or hours, or not occur at all, depending on the availability and responsiveness of the "gatekeeper" (a physician, a nurse, or even a clerk).

If authorization is obtained, the patient is evaluated and treated like all other patients. If the ED visit is *not* authorized, the hospital ED usually releases the patient *without* physician evaluation, and instructs the patient to seek care at the MCP's urgent care clinic or with the patient's PCP the next day. The hospital may or may not inform the patient of its legally specified obligations under COBRA to provide "an appropriate medical screening exam." Sometimes the patient is asked to sign a form indicating that the patient refuses the mandated

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screening examination. The patient usually leaves unhappy and angry at the hospital, blaming it, not the MCP, for denying treatment.

**Must managed care patients be provided a medical screening exam?** Yes. The courts interpret "any individual" literally. Everyone who presents to an ED must be screened, whether they are indigent, a member of a MCP, or covered by Medicare or Medicaid.<sup>6</sup> Illegal aliens are also entitled to a MSE, much to the chagrin of border hospitals.<sup>7</sup>

**Is nurse triage a medical screening exam?** No, it is not. The purpose of triage is to ascertain the nature and severity of a patient's complaint, and to determine the order in which patients are seen by a physician. The purpose of the MSE is to determine whether the patient has an emergency medical condition. The Health Care Financing Administration (HCFA) and the federal courts have uniformly held that triage does not constitute a COBRA-mandated MSE. HCFA has cited many hospitals for violations because triage nurses referred patients to an MCP clinic or physician's office without a physician examination in the ED.<sup>8</sup>

However, the law does not specify who must perform the MSE. HCFA requires only that it be carried out by "qualified medical personnel." The hospital must designate whether a physician, nurse, or other health care provider is qualified to perform the MSE.<sup>9</sup> Specially trained and supervised nurses may perform MSEs, but the examinations must be much more extensive than triage exams, and be directed at determining whether the patient is suffering from an emergency medical condition.<sup>10</sup> Furthermore, screening examiners must be blinded to the patient's insurance status, and the MSE conducted exactly the same for everyone. It may not be applied differently for MCP or Medicaid patients.

HCFA reserves the right to not accept the hospital's designation of who is qualified to carry out an MSE. HCFA may determine retrospectively that the designated person or nurse did not have sufficient medical training or expertise to conduct an MSE.<sup>11</sup> HCFA has cited some hospitals for violating COBRA by having designated nurses, not physicians conduct the MSE.<sup>12</sup>

The American College of Emergency Physicians recommends that MSEs be performed by a physician.<sup>13</sup>

**What constitutes an appropriate MSE?** "Triage" does not constitute an MSE, but how extensive must an "appropriate" MSE examination be? Federal courts specify that two components must be present:

1) The examination must be "reasonably calculated to identify critical medical conditions."<sup>14</sup> The requisite examination may range from a brief glance to categorize a patient with a rash, to CT scan and lumbar puncture to rule out subarachnoid hemorrhage in a patient with the "worst headache of my life." If it takes an on-call surgeon to decide whether a patient has an acute abdomen, then the surgeon's evaluation is an integral part

of the MSE. COBRA specifically requires hospitals to provide on-call consultants to help determine the presence of an emergency condition, and to help stabilize those conditions.<sup>15</sup> If an on-call physician declines to examine a patient simply because the physician does not participate in the patient's MCP (that is, the patient is "out of plan"), then both the hospital and the on-call physician have violated the law.

2) Not only must the MSE be calculated to identify emergency medical conditions, but exactly the same level of screening must be uniformly provided to *all* patients who present with similar complaints. The courts base this opinion on the stated goal of COBRA to prevent disparate treatment of patients. In two seminal cases (*Cleland v. Bronson Health Care Group*<sup>7</sup> and *Gatewood v. Washington Health Care Corporation*<sup>16</sup>), the courts held that "appropriate" means that which "would have been provided to any other patient or at least not known by the providers to be in any way insufficient or below their own standards." The fourth circuit court, which encompasses North Carolina, states "the hospital satisfies the requirements of COBRA if its standard screening procedures apply uniformly to all patients with similar circumstances."<sup>17</sup>

Despite these clear legal mandates, managed care plans often expect hospitals to provide a different screening for their enrollees. MCPs may request that the hospital merely "eyeball the patient" to determine whether the patient can be safely sent to a managed care facility. Neither HCFA nor the courts condone this practice, emphasizing the antidiscriminatory nature of COBRA.

Let me illustrate with an example. A four-month-old has fever, cough, and wheezing. The child appears sufficiently stable to go to a managed care facility two blocks down the street where a physician is willing and able to see the patient. However, if ordinarily the emergency physician would determine capillary oxygen saturation (pulse oximetry) and get a chest x-ray to evaluate such a patient, and if the hospital failed to provide those tests before sending the child to the managed care facility, it deviated from its standard screening protocol and thereby violated COBRA. This is precisely the differential treatment that COBRA forbids, regardless of the hospital's rationale for such behavior.

Hospitals cannot set up separate and different screening procedures for Carolina Access or Medicaid managed care patients. Waivers received from the Clinton administration to adapt managed care techniques to Medicaid patients do not allow sidestepping the requirements of COBRA. For example, some North Carolina hospitals prevent Carolina Access patients from being seen by an emergency physician until they obtain authorization from the patient's MCP; if authorization is denied, the hospital sends the patient to the MCP clinic or the PCP's office. But no other ED patients are denied access to the physician or directed away for insurance reasons. Hospitals and emergency physicians who practice such differential screening do so at their own peril because it is clearly illegal. In the past year, HCFA cited hospitals in West Virginia, Georgia, and Colorado for this practice.



**Does denial of authorization change the hospital's obligations?** No. Managed care can refuse to authorize *payment*, but it cannot specify *treatment*. HCFA's regulations are clear:

"Managed Health Care Plans cannot deny...permission to examine or treat their enrollees, they may only state what they will and will not pay for....[R]egardless of whether a hospital is to be reimbursed for the treatment, it is obligated to provide the services specified in COBRA."<sup>18</sup>

Whether an MCP has authorized payment for an emergency visit is irrelevant. The hospital must provide the mandated MSE regardless of whether it will be paid by the MCP or whether the patient could be seen immediately at the MCP's own clinic. Hospitals are legally obliged to provide an MSE, and they are held to that standard regardless of financial pressures placed on them by MCPs.

**Can the MSE be performed outside the ED?** Yes and no. After triage, many hospitals send women with pregnancy-related complaints to a special labor and delivery area for medical screening evaluation and treatment. Such protocols comply with COBRA, as long as *all* patients with similar complaints are treated similarly. It would be a violation of COBRA if *only* private patients, or *only* Medicaid patients, or *only* managed care patients were sent to a designated labor and delivery area. The same considerations hold for an urgent care or "fast track" unit near or in the ED; the distribution of patients must be based only on medically indicated triage criteria. Patients must not be sent to other institutions to receive an MSE. Many hospitals have been cited because, at the request of the patient's physician, they triaged patients to a private office or a managed care clinic for MSE, even when just across the street.<sup>12</sup>

Rural hospitals that do not have emergency physicians on 24-hour duty may have triage nurses contact the on-call physician. If the doctor and nurse feel it is safe, the patient is sent to the physician's office for examination and treatment. HCFA condemns this, holding that the on-call physician must *always* come to the ED and perform the MSE *in the hospital's emergency department*.<sup>8</sup>

**Can the MSE wait until authorization is obtained?** No. Waiting for an MCP gatekeeper to authorize payment violates COBRA's provision that there be "no delay."<sup>15</sup> In passing COBRA, Congress emphasized that "care delayed is care denied." Delaying MSEs or treatment until payment is guaranteed, defeats the purpose of COBRA. Hospitals would treat paying patients first and force those without insurance to wait. HCFA's regulations mirror Congress' intent that requests for authorization not delay or impede the MSE or necessary treatment, and that registration procedures be applied equally to everyone.<sup>19</sup> Hospitals violate the law when they delay access to the MSE while awaiting authorization from gatekeepers.

**Does the no-delay provision mean hospitals cannot tell patients that the MCP denied authorization?** No one knows. Many hospitals correctly triage patients without asking about

insurance status. Emergent patients are taken directly into the ED, examined, and treated. Nonemergent patients are sent to the waiting room and examined in the order in which they arrived. This is all perfectly appropriate because the process is nondiscriminatory.

While the patients are waiting to be seen, hospital registrars call the MCP for authorization of the services requested. If the MCP denies authorization *after* the patient was treated, so be it. The hospital could not legally delay access while awaiting authorization. But if denial occurs *before* the patient is examined, and hospital personnel then ask the patient to decide whether to stay or leave, there are significant legal pitfalls. If the patient leaves the ED (and thus refuses the MSE) after being told that payment has not been authorized, the hospital must handle the interaction very carefully to avoid liability under COBRA. Patients can refuse the hospital's MSE, but the federal courts presume that the patient wanted emergency care. Hospitals must prove that the patient explicitly revoked the request for treatment and left the hospital of his own accord. HCFA regulations say that the hospital must "take all reasonable steps to secure the individual's written informed consent to refuse" the MSE.<sup>20</sup> Hospitals should have the patient sign a "Refusal To Be Screened Form," but before obtaining the patient's signature, the hospital must inform the individual of its obligations under COBRA, and explain the benefits of the MSE and the risks involved in refusing that exam.<sup>20</sup> If the patient refuses to sign the form, a hospital representative should document that the MSE was offered and the individual refused to accept the exam or to sign the refusal form.

HCFA also believes that telling patients they may have to pay for the offered services is economic coercion and a violation of COBRA. Informing patients that their MCP will not pay for the ED visit (but will pay for care received in the MCP's facilities) may induce patients to refuse ED screening examinations. HCFA recognizes the economic duress of this and warns: "Hospitals should not attempt to coerce individuals into making judgments against their best interest by informing them that they will have to pay for their care if they remain."<sup>21</sup>

I believe that hospitals should not tell patients of authorization denials *before* the MSE is performed for the following reasons:

1) Informing patients of authorization denials before they are examined is economic blackmail, which may threaten their health and safety. Patients, who equate denial of authorization with denial of treatment, are put in the untenable position of choosing between economic hardship (if they stay) and potential adverse medical consequences, even death (if they leave). Only the intervention of alert and caring emergency nurses and physicians has prevented more disastrous outcomes after managed care patients leave EDs. In my personal experience, many patients cajoled into staying for examination and treatment after authorization was denied were ultimately diagnosed with meningococcal meningitis, orbital cellulitis, peritonsillar abscess, urosepsis, perforated gastric ulcer, anaphylaxis, exertional heat stroke, and other serious illnesses. Each of these patients

worried that the cost of the ED visit would not be paid by their insurance. There are published reports of patients who left the ED after denial of authorization only to return later with potentially fatal diseases such as ruptured ectopic pregnancy, acute myocardial infarction, and pulmonary embolism.<sup>22</sup> By saving patients, emergency physicians have saved managed care companies the adverse publicity and liability their ill-advised procedures deserve.

2) It is impossible for ED personnel to know which services are—and are not—covered by the myriad of MCPs. Each has its own definitions and exclusions, and coverages for emergency services vary. Even when the extent of coverage is known, if the authorization denial is received before the patient is examined, neither the physician nor the patient could know whether the MSE would reveal a condition that would be covered by the patient's insurance. It also keeps the ED from providing the data necessary for gatekeepers to make a reasoned decision. It is inappropriate to ask physician gatekeepers to decide over the telephone without benefit of a hands-on examination of the patient, particularly gatekeepers who may be biased by contractual economical incentives to deny services.

3) When obtaining the patient's initial consent for treatment, nearly all hospitals tell patients they will have to pay any charges not covered by the insurance carrier. Patients understand this, whether or not they are part of a MCP. Patients are entitled to all pertinent data in order to make decisions about their health care, however. Until the MSE has been performed, patients may not have enough information to make a truly informed decision.

4) There are better alternatives to prior authorization for controlling ED expenditures. Phone contact with the MCP to discuss the plan for care and authorization for payment should

occur *after* completion of the MSE and stabilizing treatment. That way further care can be approved and coordinated without jeopardizing the patient's welfare. California, Florida, and Maryland recognize the dangers and prohibit authorization calls until after the patient receives the MSE and any necessary stabilizing treatment.<sup>23</sup> The American College of Emergency Physicians, in cooperation with Kaiser Permanente, is seeking changes in federal law to prohibit authorization calls until after the MSE has been carried out and stabilizing treatment begun. The NC Department of Insurance, with help from the NC Society and the NC College of Emergency Physicians, is working on similar legislation for North Carolina.

## Conclusions

Hospitals and physicians must divorce managed care authorization and payment issues from their legal obligations under COBRA. COBRA allows one and only one way for hospitals to provide MSEs to managed care enrollees: in exactly the same way they provide screening examinations to all other patients. Hospitals must triage *all* persons without regard to insurance coverage and provide MSEs to everyone. The MSE itself must be exactly the same for *all* patients. In no case should the MSE or stabilizing treatment be delayed to obtain authorization for payment from the patient's MCP.

Dealing with managed care organizations is easier when all parties understand the obligations imposed on physicians and hospitals by COBRA. Physicians should educate MCPs about these duties and endeavor to deliver appropriate emergency services to managed care patients in compliance with COBRA law. □

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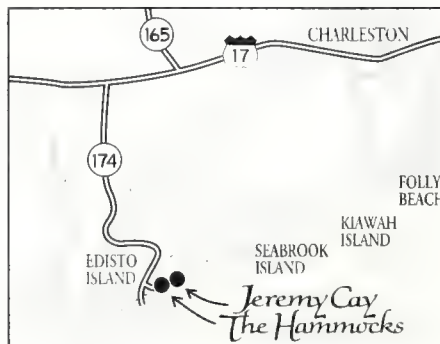
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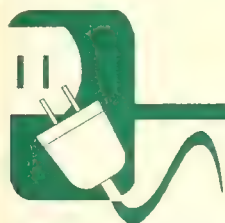
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# Health Watch

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## A Patient's Guide To Pulling the Plug on Media Violence



### CHILDREN - MEDIA VIOLENCE - SOLUTIONS

by Kathleen M. Clarke-Pearson, MD, FAAP

During the past three decades, the media has come to play a central role in the lives of American families. There is no doubt about the enormous educational impact that the media has had on our society and culture. On the positive side, research has documented that both television and video games serve as excellent learning tools. Shows like "Sesame Street" have taught many toddlers important ideas about cooperation and racial harmony, as well as counting and letter recognition.

Programs for older children, like "DeGrassi Junior High" and "Roseanne," have sensitively addressed important issues like AIDS, drug use, and teen pregnancy. Many educational video games promote problem-solving skills and reinforce math and language concepts. But the harmful effects of the media, particularly the large amount of violence that is depicted, have appropriately generated major concerns among many parents, educators, and health professionals.

*Kathleen M. Clarke-Pearson, MD, FAAP, is a general pediatrician and the chairwoman of The NC Coalition for Pulling the Plug on Media Violence.*

### **American Children and Media Involvement**

American children spend a large amount of time each week watching TV or playing video or computer games. Television occupies the most prominent role, because it has become a permanent fixture in most American homes—it is always there to give children something to do. Astonishingly, 99% of American households own a television set, and the average family has 2.4 sets. In more than half of American homes, the set is on over six hours a day. For the majority of parents, having their children watch TV has become an acceptable and convenient part of parenting for at least two generations. It is a compelling fact that the average 2- to 5-year-old watches an average of 28 hours of television a week (TABLE 1). This represents important missed opportunities for both cognitive and social interaction and imaginary play, all critical components of early childhood development.

Older children watch television an average of 21-25 hours each week, but often at the expense of doing well in school. Recent research studies document the negative effect of more than two hours of TV viewing on academic performance. American children are learning more about life from the media than in any other manner.



## Parental Concern About Media Violence

A recent poll conducted by *Parents* magazine found that 87% of parents interviewed felt that the media contains too much violence. In fact, violent acts appear approximately eight to 12 times an hour on prime-time television and up to 20 times an hour during children's programming. Children's cartoons frequently depict the heroes and bad guys in settings where kicking, punching, or even killing effectively solves the problem. More often than not, the message that kids are learning is that guns and violence are exciting, glamorous, and powerful.

## Violence In Our Society

The same *Parents* poll showed that a majority of those interviewed are worried about their children's safety. Violence in our society is also considered by many health professionals to be the single most challenging problem in our country. Between 1955 and 1992, homicide rates in the United States more than doubled from 4.5 to 10.0 per 100,000 people. In 1994 alone, over 23,000 homicides occurred. And during the same year, 51 violent victimizations per 1,000 citizens, ages 12 and over, took place.

In addition, American children are more frequently becoming witnesses or victims of violence. Over 3-million children are exposed to parental violence each year. Every 92 seconds, a person under age 20 dies from a gunshot wound. And the primary cause of death from injury for American children under age 4 is homicide. Of equal concern is the phenomenal increase in juvenile crime in our country. During the last 20 years, the rates of violent crime among younger American teens grew by 126%. The impact of this real-life violence on families and friends of victims and on our society as a whole is profound.

## Causes of Violence in Our Society Include Media Violence

What are the factors that are responsible for these high levels of violence in the United States? The availability of drugs, widespread poverty and joblessness, and decreased monitoring of children by parents have each played a role. Media violence is another significant contributing factor. The recent National Television Violence Study (1994-97) has documented that an astounding 66% of children's programs contain violence and that one-third of the shows had nine or more violent portrayals. Much of the violence is presented as

humorous, and less than half of violent interactions show the victims experiencing any signs of pain. Equally disturbing is that in well over 70% of violent portrayals on television, the perpetrators go unpunished.

## Harmful Effects of Viewing Television Violence

The National Television Violence Study has also documented the three major harmful effects of television violence on viewers. The first is the *learning of aggressive behaviors and attitudes*. Children's primary way of learning is through observation and imitation, and their constant exposure to violence on television has provided models to copy in real-life play. One of the most famous studies documenting this effect was of a small Canadian town which did not acquire television until 1973. Researchers found that children's rates of aggression, including hitting, pushing, and biting, increased by a remarkable 160% two years after television was

introduced into their homes. A 22-year prospective study of 8-year-old middle class boys found that criminal acts at age 30 correlated with both a preference for violent television at age eight and the amount of violent television viewed. Hundreds of other studies over the last 30 years have

firmly established this link between viewing media violence and increased aggressive behavior.

The second major negative impact of television violence is *emotional desensitization*. Constant exposure to repeated depictions of violence on TV leads to a blunting of viewers' emotional reactions. Research has shown that such desensitization can lead to both hardened attitudes about violence directed at others and decreased interest in taking action on behalf of a victim of violence. In addition, desensitization makes viewers more emotionally comfortable with violent content and can cause an increased interest in watching more violent programming.

The third harmful effect of media violence on children is *increased fear*. Young children are developmentally not capable of clearly distinguishing between fantasy and reality, both in their own lives and in what they're seeing on TV. Exposure to constant violence on television makes the world seem like a frightening place and can lead to nightmares and sleep problems. Research has also shown that viewing violence can lead to children being afraid of becoming a victim of violence.

### Three major harmful effects of television violence on viewers:

- *learning of aggressive behaviors and attitudes*
- *emotional desensitization*
- *increased fear*

## **Violent Video Games**

For many American children, playing interactive video games is a favorite activity. Recent research studying 7<sup>th</sup>- and 8<sup>th</sup>-graders' video game preferences found that the most popular game category is fantasy violence. In such games, the icon serves as a violent surrogate for the game player. Kicking, punching, mutilating, and killing are required to win. Losing is not a problem for the child, who can simply reboot and play again. The subliminal messages that children are learning from violent video games are profoundly disturbing. Violence not only solves problems, but rewards the player with higher scores and the chance to win. Violence, hence, becomes an acceptable and exciting way to solve conflict. And once again, violence is rewarded and not shown as having serious consequences.

## **Solutions to Too Much Television Viewing and to Media Violence**

Solutions to the problems of too much television viewing and the negative impact of media violence on children are readily available to every parent and child-care provider. The key factor is simple: *get involved in the viewing and video game choices of the family!*

### **Set Limits**

The Academy of Pediatrics recommends limiting children's TV viewing to one to two hours each day. Keep the television set in the family or living room, so that its use can be carefully monitored.

### **Plan**

Families can work together to choose appropriate programs for their children. A TV guide or newspaper can help with selections. When considering a particular program, think about the amount of violence generally depicted and whether the serious negative consequences of violence are shown. Is the violence glamorized, made to appear humorous, rewarded, or unpunished? Such depictions do a disservice to children by making violence seem an acceptable and exciting way to solve problems.

### **Participate**

*Parents are the most important role models for their children.* The media plays a very influential role, as well. Families should watch shows together and be in charge of what video games the kids are buying and playing. Parents can play a critical role in helping their children understand that the violent portrayals on TV and in video games are pretend, and that real-life violence causes serious physical and emotional pain.

## **Get help**

There are many groups working toward raising awareness about the negative impact of media violence on children.

- The NC Coalition for Pulling the Plug on Media Violence is a statewide organization of more than 40 child advocacy groups working to encourage parents' involvement in their children's media experiences. The organization's third Pull the Plug on Media Violence Week is Oct. 19-26, 1997. Contact your local Kiwanis Club, PTA, or health department educator for more information on how you can help raise community and school involvement during Pull the Plug Week. Or call (800) 474-9000 for a free family viewing guide.
- The North Carolina PTA, located in Raleigh, sponsors "Critical TV Viewing" workshops to train interested people to teach about the impact of the media and how it can be used positively for children. Call (800) 255-0417 to obtain more information.
- The National Alliance for Non-Violent Programming is a Greensboro organization that serves as a clearinghouse of information on media violence and solutions to the problem, including media literacy, community awareness initiatives, and national legislation. To obtain more information, call (910) 370-0407.

The negative impact of media violence is affecting how American children view themselves, their world, and other people. In addition, the huge amount of time that our children spend watching TV or playing video games represents time away from family interaction, imaginary play, reading, and other creative activities. The solution to each of these problems is clear: parents need to both take an active role in the viewing and video game choices of their families and limit media time to 1-2 hours a day. These two important interventions can change the powerful and often negative influence that the media now exerts in the lives of American children.

## **Other helpful resources for taking charge of the media in your home**

- The American Academy of Pediatrics has a pamphlet, entitled "Television and the Family," which offers practical guidelines to parents about television use. Your pediatrician can give you information about how to obtain it.
- To find out more about the National Television Violence Study, write or call Mediascope at 12711 Ventura Boulevard, Studio City, CA 91604; (818) 508-2080.
- The Center for Media Literacy offers a variety of excellent resources for educators, families, and community groups that address television and media literacy. Some selections include: "The Smart Parent's Guide to KIDS









TV," "TV Alert: A Wake-up Guide for Television Literacy," "Making the Media Work for You," and "Beyond Blame: Challenging Violence in the Media." Call (800) 226-9494 for a resource catalog or to place an order.

- TV-Free America is a national nonprofit organization that encourages Americans to reduce the amount of

television they watch to promote healthier and more connected lives with family and community. They have sponsored three annual National TV-Turnoff Weeks, encouraging other activities like volunteering, reading, and enjoying nature as alternatives to so much television watching. To obtain more information, write or call 1322 18th St., NW, Suite 300, Washington, DC 20036; (202) 887-0436. ☐

**TABLE 1**

Time Spent Watching TV		
Age Group		Hours
Teen boys		21
Teen girls		22
6-11 year olds		25
2-5 year olds		28
18+ men		29
18+ women		34

*Nielsen Media Research, 1990*

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## The Eye of the Storm

### A Bedside View

by Lia S. Logio, MD

If you drive through the Research Triangle, you can still see evidence of Hurricane Fran and the destruction her temper left behind. Along I-40, clusters of tall, lean Carolina pines, normally standing at attention, now stretch parallel to the ground pointing toward the direction of their attacker. Six months into the wake of the storm, much of the damage has been repaired, but neatly stacked piles of still freshly cut logs in scattered but contiguous neighborhoods remind us of what we have survived.

The storm had an impact on most North Carolinians, one way or another. After the early Friday morning attack on September 6, 1996, my life became dramatically different. There was an unusual stillness in the thick hot air, a noticeable quiet without the whir of air conditioners and refrigerators, a velvet blackness as evening hours were perforated by small candle flames and the occasional open grill. I was the on-call physician at Duke University Medical Center in the days following the storm. As a young doctor, I spent those days learning about weather's

significant effect on the balance of health and disease. I was reminded of my grandmother's predictions of rain when her knees ached—Fran was just as interesting to contemplate but far more dramatic.

### Mother Nature's Magnitude

Friday's admissions included three patients with chronic obstructive pulmonary disease (COPD) and a man with obstructive sleep apnea. Environment tilted the balance of health in the first three because the hot, humid air and lack of air conditioning produced acute exacerbations of their disease. Two of the three had used (and needed) home nebulizer equipment which was now defunct because of lack of electricity. The patient with sleep apnea came to the emergency room at 9 p.m., announcing "I have sleep apnea and am on CPAP at home. I can't go to bed!" On further review, I found that he needed CPAP to control hypoxia-induced ventricular tachycardia! Surprisingly, I admitted only one patient with acute myocardial infarction.

On Saturday, two more patients with COPD were admitted for reasons similar to the previous three. Two other patients

came in with supraventricular tachycardias, and both give distinct histories of horrifying personal experiences that had precipitated their palpitations. The rest of the weekend potpourri included an older woman with pyelonephritis, one with alcoholic pancreatitis, and a morbidly obese man with deep venous thrombosis and subsequent pulmonary embolism. Each reported a change in routine because of the storm's effect on their homes, their hobbies, their comforts. The woman with pyelonephritis began drinking much less fluid because of a lack of ice and a desire to minimize visits to the dark bathroom. The alcoholic had no edible food and drank heavily out of boredom. The morbidly obese man just didn't bother to move for a few days: "It was too much to attempt in the sweltering heat."

Instead of the normal tranquillity of Saturdays and Sundays, the hospital buzzed with activity that weekend. Many Durham residents learned that the Duke Hospital cafeteria was one of the only places open, and the community brought their hungry children. Epidemic cabin fever was added to the myriad of infirmities already represented in our 800-bed hospital. Rationing began when a large sign appeared at the entrance, "We will serve staff and patients' families first;

Dr. Logio is Director, Primary Care Residency Training Program, and Assistant Professor, Division of General Internal Medicine, Duke University Medical Center, Durham. Art by V. Cullum Rogers.



please show your blue meal ticket or ID badge for service."

Sunday brought more of the same. A patient was admitted with a cellulitis developed after wading through the foliage and debris around her yard; two patients with cholecystitis who had tried to eat the entire stash of food from the freezer before it spoiled completely; lastly, a patient with an asthma flare whose wheezing, coughing, and spewing began just after the chainsaws did. On Monday there was a sickle cell crisis in a very dehydrated young man and the first of two copperhead snake bites. People found snakes in their garages and at the curbside because of the temporarily high water levels. One young diabetic intentionally skipped her insulin—she was afraid that it might be unsafe without refrigeration—and was admitted with diabetic ketoacidosis. On the other side of the coin, a veteran diabetic was admitted with a hypoglycemic insulin reaction. His wife defiantly announced: "I told him not to do his injection in the dark bathroom without help."

Was this just another week on the general internal medicine inpatient service, I wondered? After all, I had seen all these problems except the snake bites before. But my colleagues in pulmonary, rheumatology, and nephrology confirmed my suspicions about the magnitude of Mother Nature's great influence on health

and suffering with their stories: the ventilator-dependent patients who all required admission, the severely debilitated rheumatoid arthritics who "gelled" into statues, the home hemodialysis patients who swelled with retained toxic serum.

As I answered telephone pages in the pitch black night, I felt like the week would last forever. I thought my house would go up in flames because of my middle-of-the-night-stuporous match-striking, candle-lighting ritual as I wrote down each newly admitted patient's name, number, and basic story. By week's end, I had gained a new appreciation for ambience and atmosphere. But there was more to come.



## The Precarious Balance of Health and Environment

The long-term sequelae of Fran were demonstrated one month later by the deeply concerned Raleigh family who were convinced that their 83-year-old father had a colon cancer. He had lost 40 pounds in the month after the storm. His three adult children, visibly distressed, were sure that he was dying. His wide-eyed stare penetrated me as he recounted the frightening story of how he and "the Mrs." barely escaped with their lives amid the falling trees. In a late attempt to evacuate their home, they began to drive off in their car when the road became blocked



by a tree that fell just in front of the vehicle. He attempted to back up and go around, but a second tree fell on the rear of the car, pinning it in place. All night, they sat and waited in fear that the next crash would end their lives. A replay of the nightmare occurred each night since their narrow escape. For this man, no battle of World War II had left such indelible memories as his recent battle against the elements. He was suffering from post-traumatic stress disorder, not cancer. He responded well to appropriate medication.

Not much has been written about post-hurricane medical care.<sup>1,2</sup> What few articles there are discuss the acute triage of injuries and electrical burns after a storm. Two articles from ambulatory care clinics report a high incidence of respiratory and gastrointestinal illnesses after hurricanes. Some of my experience confirms this, but the inpatient venue clearly adds a selection bias to my observations.

My conclusion as I look back on a busy week of service is simple. Health is balanced precariously amid a dynamic flux that includes environment, electricity, and emotion. The sap-drained pines are no more of an emblem of Nature's power and might than the patient histories I heard at the bedside in the days after Fran's attack. Just a different way of looking at the world's vulnerability in the face of Nature's whim. □

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# Poison Control in North Carolina

S. Rutherford Rose, PharmD, ABAT, FAACT

In 1953, a group of pharmacists and pediatricians established the United States' first Poison Control Center at St. Luke's Hospital in Chicago. They acted in response to the large number of childhood poisonings from both medications and household products. More than 800 children under age five died from poisoning in 1949 and 1950; the number remained at nearly 500 per year through the 1950s.<sup>1</sup> The most common substances causing death were "baby aspirin" and sedatives—and household products with exceedingly toxic ingredients, in poorly labeled and packaged containers, that proliferated with the urbanization and consumer demand that followed World War II.

The poison control movement established early roots in North Carolina. Dr. Jay Arena (later president of the American Academy of Pediatrics, and the American Association of Poison Control Centers) started a poison center at Duke University in 1954. Dr. Arena published one of the first modern textbooks on poisoning and was instrumental in the development of childproof safety caps, which first appeared on aspirin bottles in 1970.<sup>2</sup> Dr. Arena retired in 1979 and died in January 1996 at the age of 86.

## Growth and Regionalization of Poison Control

The number of poison control centers in the US grew rapidly during the 1960s and 1970s. By 1980, telephone directories listed more than 600 centers. It became fashionable for hospitals to install a poison control line to improve community service and public relations. Unfortunately, calls to most of these centers were routed to unprepared staff in the emergency department or inpatient pharmacy. The health professionals who responded to these calls, besides being busy with other duties, rarely had formal training or experience in clinical toxicology—or even access to consultants with such training. Most centers lacked up-to-date references, performed no data

collection or analysis, and did not follow patients over the course of their illness. The staff were unable to gain sufficient experience because of low call volumes.

Regional poison centers—with their full-time, trained staffs, comprehensive resources, 24-hour-a-day operation, large geographic service areas, and thousands of calls annually—could clearly provide more appropriate and consistent advice than nonregional centers.<sup>3</sup> Regional centers were championed by the American Association of Poison Control Centers (AAPCC), established in 1958 as a nationwide organization of poison centers and other interested individuals. The AAPCC aimed to reduce morbidity and mortality from accidental poisonings by promoting public and professional education and scientific research, and by setting voluntary standards for poison center operations. Today, approximately 50 poison centers in the country have met the strict standards established by the AAPCC, and been Certified Regional Poison Centers.

## The North Carolina Experience

From 1954 through September 1995, most emergency information about poisoning was provided to the public and physicians in North Carolina by the Duke Poison Center. In the 1970s, the Triad Poison Center was established at Moses H. Cone Hospital to serve Greensboro and its surrounding counties. Additional small centers were also established at Mercy Hospital in Charlotte and Memorial Mission Hospital in Asheville. In 1992, the Carolinas Poison Center was established at Carolinas Medical Center in Charlotte, coincident with closing of the center at Mercy Hospital. The Carolinas Poison Center was created to provide 24-hour-a-day service by trained, fully dedicated poison specialists and board-certified clinical toxicologists. In 1995, the Carolinas Poison Center was certified by the AAPCC as a Regional Poison Center, and later that year was designated by the Secretary of the Department of Human Resources as the statewide center for North Carolina, replacing the Duke Poison Center, which closed after 41 years of service to the citizens of North Carolina. Telephone traffic at the Poison Center rose from 23,000 in 1993 to nearly 73,000 in 1996.

Dr. Rose is Director, Carolinas Poison Center, and Clinical Associate Professor of Emergency Medicine, Carolinas Medical Center, Charlotte, UNC School of Medicine.

## Regional Poison Control Center Services

Regional poison centers provide comprehensive poison information to both the public and to health care providers. They also advise clinicians about the diagnosis of and treatment for poisoning victims (Table 1, at right). This means that toll-free access to emergency information must be available 24 hours a day throughout the region. Phones must be staffed by certified (or certifiable) poison information specialists whose efforts while on duty are dedicated to poison center activities. In most cases, assistance is provided directly by telephone. If the situation requires close medical supervision, the poison center must be able to refer and facilitate transportation of patients to appropriate health care facilities.

Regional poison centers must themselves have qualified medical supervision, comprehensive information resources (online, text, and library), and respond to at least 10,000 human exposure cases per year. They also must collect, analyze, and report patient data, coordinate toxicologic analytical facilities (including interpretation of laboratory results), and sponsor health care professional and public education programs. Virtually all accidental poisonings in children are preventable. Therefore the development and implementation of poison prevention programs targeting high-risk populations (especially children less than six years old) are integral parts of regional poison centers.

## The Carolinas Poison Center

The Carolinas Poison Center, located at and primarily funded by Carolinas Medical Center in Charlotte, responded to a record number of calls in 1996, its first full year of operation as the state-designated center. All of its poison information specialists are pharmacists or registered nurses who have received special training in clinical toxicology. Most of the nurses have had extensive experience in emergency departments as well as at the bedside of poisoned patients. These specialists respond to queries about acute and chronic drug overdoses; adverse drug reactions; exposure to plants, mushrooms, pesticides, and household products such as cleaning substances and cosmetics; bites by insects, snakes and spiders; and occupational or environmental exposures to chemicals (Table 2, at right).

Medical backup and clinical supervision are essential components of all regional poison center programs. At Carolinas Poison Center, at least one of three physicians and a pharmacologist, all trained in clinical toxicology, are on-call 24 hours a day to back up the poison information specialists and to provide physician consultation. The medical director of the Center, Marsha D. Ford, MD, FACEP, is assistant chairman of the Department of Emergency Medicine at Carolinas Medical Center. She is board-certified in internal medicine, emergency medicine, and medical toxicology. Medical direction is also provided by William P. (Russ) Kerns, MD, FACEP, and Christian A. Tomaszewski, MD, both of whom are board-certified in

**Table 1. Services offered by regional poison control centers**

1. Provide toll-free, 24 hour/day emergency poison information to the public and health care providers.
2. Facilitate the care of poisoned patients through consultation with local physicians. Provide a detailed understanding of regional health care resources (availability of prehospital care, hospital resources, analytical capabilities, and physician specialists).
3. Actively promote poison prevention awareness through the development and delivery of educational programs that target the parents and caretakers of children one to six years of age who are at the highest risk for accidental poisoning.
4. Provide training and education to health care providers in the diagnosis and treatment of poisonings.
5. Enhance understanding of the epidemiology of poisonings through the collection and analysis of human poisoning data.
6. Contribute to a greater understanding of toxicology patient management through basic science and clinical research.

**Table 2. Calls to Carolinas Poison Center in 1996**

Human exposures	55,710* (76%)
Information calls	17,166 (24%)
Drug information or identification	9,151
Other (includes animal calls)	3,914
Poison information	1,562
Medical information	1,006
Prevention/safety	770
Environmental	698
Teratogen information	44
Occupational	21

\* An additional 37,525 follow-up calls were made in 15,191 (27%) of the exposure cases.

emergency medicine and medical toxicology. The director of the Center, Rutherford Rose, PharmD, FAACT, is a clinical pharmacist and board-certified in clinical toxicology. All four toxicologists hold faculty appointments in the Department of Emergency Medicine at the UNC School of Medicine. All maintain active toxicology practices through case review and consultation in the poison center, through care provided in the emergency department, and through an inpatient consultation service. They supervise a two-year medical toxicology fellowship, oversee housestaff rotations, and carry out basic science and clinical research.



The Carolinas Poison Center maintains active education programs for health care professionals and the lay public. Faculty toxicologists provide didactic and clinical training for physicians, housestaff, pharmacists, nurses, and emergency personnel in the diagnosis and treatment of acute and chronic poisoning. In addition to local lectures, telemedicine broadcasts reach teaching and community hospitals across the state. A full-time staff member coordinates poison prevention education in schools, day care centers, churches, businesses, and civic groups. These latter programs primarily target parents and caretakers of young children, since most accidental poisonings occur in toddlers.

## Epidemiology of Poisoning in NC

Injury by poisoning is a significant national problem. An estimated three to five million poisoning exposures occur every year. In 1996, 2.16 million poisoning exposures were reported from 67 US poison centers;<sup>4</sup> 55,710 of them from the Carolinas Poison Center. Carolinas Poison Center received calls from all 100 NC counties in 1996, with an overall penetrance of 8.1 exposure cases per 1000 population. Poison centers use call penetrance as an indicator of awareness and utilization of the Center by its constituents.

Poisoning statistics in North Carolina conform to the national experience. More than half (56%) of poisonings occur in children five years and younger, with the highest incidence in children between 12 and 36 months of age (Table 3, at left). Males account for 52% of those less than 20 years old, but only 41% of adults. Most exposures are acute (95%), accidental (89%), and occur in the home (91%). Substances involved in poison exposures are usually household products or common medications (Table 4, below left).

The great majority of calls (82%) originated from private residences; 12%, from hospitals, clinics, or physician offices; 3%, from emergency service providers, law enforcement, nursing homes, nurses, pharmacists, dentists, veterinarians, and other health care professionals. In most cases, patients were "treated" over the phone by Center specialists.

**Table 3. Age distribution of poisoned patients, 1996**

Age (yrs)	Number
< 6	31,446 (56%)
6-12	3,405 (6%)
13-19	3,453 (6%)
≥ 20	15,881 (29%)
Unknown age	1,525 (3%)

## Cost Effectiveness

Last year, 78% of the 55,710 patients handled through the Poison Center were treated at the site of exposure, thereby avoiding ambulance calls, office visits, or hospital treatment. This high percentage of home care is possible because of the Center's experience and the specific follow-up calls made by poison specialists to assess efficacy of first-aid measures and to detect delayed-onset symptoms. Present data suggest that 50%-60% of those patients would otherwise have visited a health care facility.

Last year, the Center's staff provided phone consultation for 11,516 patients who required hospital or physician services. In most cases, patients remained in their own communities for treatment; 54% were treated and released from the emergency department (or office); 26% were admitted to the hospital; and 20% were lost to follow-up (for example, referred to hospital but never arrived). Of the patients eventually hospitalized, half were sent to the hospital by Poison Center staff and half were already under hospital care when the Center was contacted for advice.

The efficient and parsimonious management of toxic exposures by poison centers translates into tan-

**Table 4. Substances involved in poisoning exposures, 1996**

Pharmaceuticals	# Cases	Nonpharmaceuticals	#Cases
Analgesics	5,476	Household cleaning products	5,956
Cough & cold preparations	3,167	Cosmetics/personal care products	5,102
Topicals	2,165	Plants	3,033
Antimicrobials	1,781	Bites & envenomations	2,458
Sedative/hypnotics	1,595	Toys, foreign bodies	2,126
Antidepressants	1,506	Hydrocarbons	1,980
Antihistamines	1,336	Food products/poisoning	1,635
GI preparations	1,312	Insecticides/pesticides	1,613
Vitamins	1,091	Chemicals	1,376
Cardiovascular drugs	960	Alcohols	1,319
Stimulants & street drugs	858	Arts & crafts products	991
Hormones	750	Fumes, gases, vapors	830
Anticonvulsants	443	Rodenticides	665
Asthma therapies	412	Deodorizers (nonpersonal use)	627
EENT preparations	399	Paints, varnishes, lacquers	573
Miscellaneous Rx/OTC drug	397	Adhesives, glues, cement	526
Unknown type of drug	391	Auto/aircraft/boat products	338
Electrolytes & minerals	367	Heavy metals (excluding iron)	327
Muscle relaxants	286	Fertilizers	307
Anesthetics	218	Unknown (nondrug)	295

gible cost-savings for North Carolina and the nation. The estimated cost savings in North Carolina alone was \$5-\$7 million in 1996.

## Management of Poisoning

In 1996, most poisoned patients were managed by decontamination alone, and this was particularly

true for measures performed at home (Table 5, above). Thirty-nine percent of patients received the "dilution/irrigation/wash" recommended for dermal and ocular exposures as well as ingestions of liquids considered subtoxic. Food or snacks were recommended for subtoxic ingestions of solid materials, particularly tablets such as iron or nonsteroidal anti-inflammatory drugs that can cause gastric irritation. Ipecac-induced emesis was used only in asymptomatic children for whom the poison center was called immediately following ingestion so that ipecac could be administered within 30 minutes. For patients in emergency departments, activated charcoal is the most effective and best tolerated means of gastrointestinal decontamination. Alternatives such as whole bowel irrigation were used for substances that are poorly absorbed by charcoal, such as iron and lithium.

The need for definitive therapy, including specific antidotes, was relatively rare (Table 6, at right). Those used included N-acetylcysteine (for acetaminophen toxicity), sodium bicarbonate (for cyclic antidepressants, salicylates, etc.), naloxone (for narcotics), and calcium (for calcium antagonists, hydrofluoric acid burns, black widow spider bites). Drug removal via hemodialysis or hemoperfusion was needed in only 22 and one (respectively) of last year's patients.

## Outcome of Poisonings in 1996

We assess clinical outcomes by follow-up telephone calls to both inpatients and those treated at home. The call frequency is determined by severity of illness and extent of previous consultation by the toxicologists or Poison Center staff. Patients are closely followed if their symptoms are likely to persist or worsen, or if they are asymptomatic but likely to develop symptoms. Clinical outcomes in cases handled by the Carolinas Poison Center in 1996 are listed in Table 7 (next page). Note that it is difficult to determine dose-response relationships from these data because doses are estimated from the patient history and laboratory confirmation is usually lacking.

The Center was consulted on 32 patients who died. In 25 of these cases (78%), poison exposure was judged to be at least probably responsible for the death; in only two cases was death judged to be clearly unrelated. In 20 of 25 ingestion-related deaths, exposure was intentional, but in five cases the reason for exposure was unknown (Table 8, next page). The North Carolina death rate (57/100,000 poisonings) is slightly higher than the national rate of 726 fatalities in the more than two million exposures (36/100,000) reported to poison centers in 1996.

**Table 5. Decontamination methods used, 1996**

Method	Recommended	Done	Both	Total done
Ipecac	178	381	1,628	2,009
Activated charcoal	1,017	656	3,024	3,680
Multidose charcoal	182	91	275	366
Lavage	25	577	57	634
Cathartic	14	159	30	189
Whole bowel irrigation	29	12	44	56
Other emetic	0	178	0	178
Dilute/irrigate/wash	247	3,776	17,977	21,753
Fresh air	28	393	1,414	1,807
Food/snack	241	1,783	6,566	8,349

**Table 6. Therapeutic measures in poisoned patients, 1996**

Therapy	Total done
Antihistamines	1,334
Fluids, IV	960
Oxygen	342
NAC, PO	249
Intubation	198
Ventilator	161
Alkalinization	152
Naloxone	143
Bronchodilators	105
Calcium	58
Flumazenil	43
Glucose, >5%	34
Atropine	30
Anticonvulsants	29
Vasopressors	27
Hemodialysis	22
Pralidoxime (2-PAM)	19
Hyperbaric oxygen	18
Ethanol	17
Neuromuscular blocker	17
Antivenin	12
Glucagon	11
Antihypertensives	11
Deferoxamine	9
Pyridoxine	9
NAC, IV	7
Succimer	6
Physostigmine	5
Antidysrhythmics	5
Digibind Fab	5
BAL	4
Cardioversion	4
CPR	4
Methylene blue	3
Folate	3
Phytonadione (K-1)	3
EDTA	2
Amyl nitrite	2
Sodium thiosulfate	1
Hemoperfusion	1

*Continued next page*



## Summary

Poison centers contribute importantly to public health.<sup>5</sup> They provide expert emergency advice without charge, offer early telephone triage of poisoning cases, assist parents and caretakers in managing simple exposures at home, and recommend hospital evaluation for patients suspected of serious exposure. Their efforts lead to significant cost savings by averting unnecessary medical evaluations. Poison centers offer physicians and other clinicians consultation with board-certified medical toxicologists to arrange for definitive care or, more often, to help provide good, cost-effective care in local communities. The Poison Center's efforts to prevent accidental poisoning and to increase awareness and utilization of its services benefit both patients

**Table 7. Clinical outcomes in 55,710 poisoned patients, 1996**

Outcome	Number
No effect	6,468 (11.6%)
Minor effect	8,159 (14.6%)
Moderate effect	1,906 (3.4%)
Major effect	230 (0.4%)
Death	33 (0.1%)
Not followed, judged as nontoxic	24,586 (44.1%)
Not followed, only minimal effects possible	10,562 (19.0%)
Unable to follow, judged as potentially toxic	1,526 (2.7%)
Unrelated effect(s)	2,038 (3.7%)
Confirmed nonexposure	202 (0.4%)

and health care providers by reducing morbidity and costs associated with poisonings. □

**Table 8. Poisoning fatalities reported by Carolinas Poison Center, 1996.**

Case	Age	Gender	Substance(s)	Reason for poisoning	Exposure duration
1	6	F	Disulfoton	unknown	acute
2	31	F	Acetaminophen, ethanol	intentional	chronic
3	82	F	Amitriptyline, flurazepam, perphenazine	intentional	acute
4	38	F	Amitriptyline, clonazepam, lorazepam, nefazadone	intentional	acute
5	19	M	Salicylate, antihistamines	intentional	acute
6	34	F	Cocaine	intentional	acute
7	71	F	Amitriptyline	intentional	unknown
8	16	M	Propane	unknown	unknown
9	46	F	Acetaminophen	intentional	unknown
10	42	F	Verapamil, desipramine, fluoxetine	intentional	acute
11	55	F	Midazolam, nystatin	unknown	acute
12	2	M	MS contin 60	unknown	acute
13	39	M	Gamma hydroxybutyric acid, ethanol	intentional	acute
14	34	F	Opiates, benzodiazepines, acetaminophen	intentional	unknown
15	70	F	Butalbital, acetaminophen, caffeine	intentional	unknown
16	60	F	Potassium cyanide	intentional	acute
17	unk	M	Carbon monoxide	intentional	acute
18	36	M	Crack cocaine	intentional	acute
19	22	M	Benzotropine, haloperidol	unknown	acute-on-chronic
20	63	M	Crack cocaine	intentional	acute-on-chronic
21	19	F	Morphine	intentional	acute
22	35	M	Quinidine, digoxin, doxepin	intentional	acute
23	35	M	Crack cocaine	intentional	acute
24	40	M	Clonazepam, amitriptyline	intentional	acute-on-chronic
25	54	F	Clonidine, carbamazepine	intentional	acute-on-chronic

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# CME Calendar

## *July 18-20*

### **Southern Medical Association Conference on Pain Management**

Place: Kiawah Island Resort, SC  
Info: SMA, 800/423-4992

## *September 13-14*

### **24th Annual Postgraduate Course Alexander Spock Symposium: Practical Management of Common Problems in Ambulatory Pediatric Patients**

Place: Searle Center, Duke Medical Center, Durham  
Fee: MDs: \$150 for both days (\$100 Saturday or \$50 Sunday); allied health professionals: \$90, MDs-in-training: free  
Credit: hours pending  
Info: Joseph Marc Majure, MD, Course Director, Assistant Professor of Pediatrics, Duke Division of Pediatric Pulmonary Diseases, Box 2994, DUMC, Durham 27710, 919/684-2289, fax: 919/684-2292

## *September 18-21*

### **Coastal Medical Retreat and 14th Aesculapian Sports Classic**

Place: Kingston Plantation, North Myrtle Beach, SC  
Credit: 9 hours Category 1, AMA  
Info: Beth Mixon, Coastal AHEC, P.O. Box 9025, Wilmington 28402-9025, 910/343-0161 ext. 312

## *September 25-27*

### **Multidisciplinary Cardiovascular Conference and Orgain Symposium**

Info: Duke Heart Center, 919/681-4278, fax: 919/681-7953

## *September 26-28*

### **4th Annual Meeting: NC and SC Chapters, American College of Cardiology**

Place: Grove Park Inn Resort, Asheville  
Info: NC-ACC, 919/787-5181

## *September 27*

### **Duke Heart Center Lecture**

Place: Duke Hospital North  
Info: Duke Heart Center, 919/681-4278, fax: 919/681-7953

## *October 15-19*

### **Infectious Disease '97 Board Review: A Comprehensive Review for Board Preparation**

Place: Ritz-Carlton, Tysons Corner, McLean, VA  
Fee: \$820 for physicians; \$695 for physicians-in-training (before July 15)  
Credit: 36 hours Category 1, AMA  
Info: Center for Bio-Medical Communications, Inc., 80 W. Madison Ave., Dumont, NJ 07628, 201/385-8080, fax: 201/385-5650, e-mail: cbcbiomed@aol.com

## *October 24*

### **Medical Response to Domestic Violence: Special One-Day Conference**

Place: Friday Center, UNC-Chapel Hill  
Info: sponsored by The Beacon Program at UNC Hospitals and the UNC Injury Prevention Research. Contact Diana Solkoff, The Beacon Program, 919/966-9314, fax: 919/966-9315

## *October 30-November 1*

### **2nd Annual Integrating Mind, Body, and Spirit in Medical Practice Conference**

Place: Sheraton Imperial Hotel, Research Triangle Park  
Info: 919/684-4293, Internet URL: <http://www.mc.duke.edu/nursing/nshomepg.htm>

## *November 5-9*

### **Southern Medical Association's Annual Assembly**

Place: Charlotte  
Info: SMA, 800/423-4992

## *November 12-15*

### **American Medical Writers Association Annual Conference**

Place: Sheraton Hotel, Boston, MA  
Info: AMWA, 9650 Rockville Pike, Bethesda, MD 20814-3998, 301/493-0003, fax: 301/493-6384, e-mail: amwa@amwa.org

## *November 12-15*

### **International Congress on Performance Measurement and Improvement in Health Care**

Place: Chicago, IL

*Continued on page 304*

# Injury Prevention and Control

## An Evolving Role for Emergency Physicians and Other Specialists

Herbert G. Garrison, MD, MPH, Carol W. Runyan, PhD, and Kathleen A. Dunn, MD, MSPH

"The sleeping giant of health care is awakening to its new role in society. As we move from a system designed to care for illness to one that emphasizes wellness, we change our measuring rod of success. Injury prevention takes on a new and more important dimension, not only for improving the health of the nation, but also in the ability to truly control health care costs."

—Ricardo Martinez, MD<sup>1</sup>

The evaluation and treatment of injuries account for one-fourth of all patient visits to hospital emergency departments (EDs). Not every injured patient requires ED care, but almost all those with serious injuries receive stabilizing, and often definitive, care from an emergency physician (EP).

The care of injuries is a major research area for emergency medicine. During the past 30 years, EPs have sought to identify better ways of treating specific injuries and studied how to improve trauma services, including prehospital emergency medical care. Recently, EPs and other physician specialists have turned their attention to injury prevention, focusing on ways to keep injuries from occurring in the first place.<sup>2</sup>

In this article, we review the injury problem, describe the principles of injury control, and depict fundamental strategies used for preventing injuries. We then examine injury prevention as part of the work of the ED and discuss how emergency physicians, surgeons, and primary care physicians can work with injury control specialists to implement injury prevention initiatives in their communities.

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### The Injury Problem

By "injury" we mean damage resulting from the acute interaction of the body with physical agents (mechanical energy, heat, electricity, chemicals, or ionizing radiation) in amounts or at rates that exceed human tolerance.<sup>3,4</sup> The sudden deficiency of oxygen or heat can also cause injuries (e.g. drowning, frostbite). Mechanical injuries, such as those from motor vehicle crashes, falls, sports, and shootings, account for about three-fourths of all injuries.<sup>5</sup>

In the United States, injury is the leading cause of death in persons under 44 years old, and the leading cause of years of potential life lost.<sup>6,7</sup> One in four citizens—70 million Americans—are injured every year at an annual cost of more than \$200 billion.<sup>8-10</sup> And for every person who dies from injury, 19 persons require hospitalization and 354 need medical care.<sup>10</sup>

In North Carolina, injury takes a similarly high toll: more than 4,000 people die and economic losses exceed \$1 billion annually.<sup>11</sup> Motor vehicle crashes (MVCs), the leading cause of injury death in the state, result in about 1600 deaths each year.<sup>12</sup> Firearms, fires, and drowning together cause almost as many deaths as MVCs. As in the nation as a whole, injury is the leading cause of years of potential life lost in North Carolina. In fact, more years of potential life are lost per unit population in North Carolina than in the US as a whole.<sup>13</sup>

### Injury Control

The specialty area of injury control is relatively new. Its history



can be traced by the major documents that established its vision and directed its work. In 1966, the National Research Council's *Accidental Death and Disability: The Neglected Disease of Modern Society*<sup>14</sup> highlighted the carnage caused by "accidents" and pointed out that most were preventable. This resulted in some attempts at prevention—mostly highway safety—but 20 years later, 2.5 million Americans had still succumbed to injury. This prompted the Committee on Trauma Research (jointly sponsored by the National Research Council and the Institute of Medicine) to issue a second landmark report, *Injury in America: A Continuing Public Health Problem*.<sup>15</sup>

*Injury in America* described the scope of the problem, recommended specific needs for research in prevention and treatment, and delineated the federal role in injury control.<sup>15</sup> Since *Injury in America*, injury control has become a legitimate area of scientific research, a coming of age demonstrated in the following important documents: *Cost of Injury in the United States: A Report to Congress*,<sup>16</sup> *Injury Prevention: Meeting the Challenge*,<sup>17</sup> and *Injury Control in the 1990s: A National Plan for Action*.<sup>18</sup>

The *National Plan for Action* outlines three distinct components of injury control: prevention, acute care, and rehabilitation.<sup>18</sup> *Prevention* applies to four specific types of injuries: those resulting from motor vehicle crashes, interpersonal and self-directed violence, home and leisure activities, and occupational incidents and conditions.<sup>18</sup> *Acute care* refers to treatment provided in the period shortly after an injury occurs to minimize serious outcomes and long-term disability. Acute care requires trauma care systems for the quick identification, triage, and transport of the injured patient to an appropriate facility. *Rehabilitation* services restore the injured person's physiologic, psychologic, and social functioning as closely as possible to its original state.<sup>18</sup> The *National Plan's* blueprint for injury control efforts is shown in the Appendix (page 282).

## Injury Prevention Strategies

As with all public health problems, injury prevention relies on 1) data collection and surveillance to define the problem(s), 2) data analysis to identify causes and risk factors, 3) research to develop and test interventions, and 4) implementation and evaluation of preventive interventions.<sup>18</sup> Haddon has proposed 10 general strategies to be considered when designing a preventive intervention for a specific injury (Table 1, at right).<sup>19</sup> The strategies help generate ideas for countermeasures in a logical and systematic fashion.

Injury prevention interventions can be either active or passive.<sup>20</sup> An active intervention requires the cooperation of the individual (for example, use of manual safety belts, motorcycle and bicycle helmets, and child safety seats). Passive interventions exert their protective effect automatically, without action by the individual being protected (for example, automobile air bags). Both types of interventions may be needed to significantly reduce injuries such as those caused by motor vehicle

crashes. North Carolina, in addition to standard strategies (divided highways and speed limits), has two model programs, "Click It or Ticket" and "Booze It and Lose It." These and other interventions have progressively decreased deaths from motor vehicle crashes.

Despite some success in preventing injuries, there is still a lot of work to do, especially among high-risk groups. In North Carolina motor vehicle death rates have declined for most age groups, but they continue to rise in 16- and 17-year-olds.<sup>21</sup> The recently adopted graduated licensing of teenager drivers is an attempt to reduce the problem of motor vehicle crashes caused by inexperienced drivers. This persisting problem represents an opportunity for physicians to work with injury control specialists to reduce injuries.

## Injury Prevention in the Emergency Department

The chaotic and charged environment of the emergency department, where patient care is paramount, seems ill-suited for injury prevention. Yet, there are ways in which emergency physicians can use their ED work to prevent injuries.

**Documentation and surveillance.** Because most patients with serious—and many with non-serious—injuries are cared for in emergency departments, the patient encounter there provides an unequalled opportunity to collect information on the types, severity, and causes of injuries. In the past, ED records have not

**Table 1. Haddon's 10 general injury prevention strategies (with an example of a countermeasure for motor vehicle crash injuries).**

1. Prevent the creation of the hazard (discontinue the manufacture of automobiles).
2. Reduce the amount of the hazard (limit the number of vehicles being manufactured).
3. Prevent the release of a hazard that already exists (permit daylight driving only).
4. Modify the rate or spatial distribution of the hazard (use seat belts and child safety seats).
5. Separate, in time and space, the hazard from that which is to be protected (remove roadside poles and trees).
6. Separate the hazard from that which is to be protected by a material barrier (install air bags).
7. Modify relevant basic qualities of the hazard (use soft, energy-absorbing surfaces in cars).
8. Make what is to be protected more resistant to damage from the hazard (wear helmets).
9. Begin to counter the damage already done by the hazard (stop hemorrhage).
10. Stabilize, repair, and rehabilitate the object of the damage (develop regional trauma systems).

adequately documented this information,<sup>22</sup> precluding the systematic use of the ED record for statistical information. We need improved documentation of the circumstances of each injury. In the future, this may be provided by computerized prompts used for general ED documentation. In the meantime, EPs can include in their documentation narrative information that can be translated into ICD-9 injury causation codes (E-codes). Medical record coders require as much detail as possible about the circumstances of an injury to assign E-codes (it helps to keep in mind the journalist's "who, what, when, where, and how"<sup>23</sup>).

Few hospitals translate ED record information into E-codes. Physicians should encourage their hospitals to adopt standard practices for collecting information about patients. When hospitals become part of a standardized injury surveillance system, their data can be used to guide prevention activities and evaluate their effectiveness.<sup>24,25</sup> Through this process, emergency physicians can have an impact on injury prevention in the community.

**Screening and referral.** Many injured patients who seek treatment in EDs are at risk for recurrent injury—for example, the impaired driver or the victim of domestic violence. Often these patients are discharged from the ED to the care of their primary physicians.<sup>26</sup> Emergency and primary care physicians should ensure the presence of a system for screening at-risk patients and then referring them appropriately. For example, impaired drivers can be referred to alcoholism treatment programs and battered women to family violence programs. Finally, emergency physicians must take precautions that drunk drivers do not drive home from the ED and that battered women have an opportunity to choose an alternative to returning to an unsafe environment.

**Patient education.** Physicians rarely document that they have provided injury prevention instruction to their patients.<sup>27</sup> It is reasonable to assume that this is because they rarely provide such instruction. Emergency physicians and emergency department staff can close the gap. The ED encounter represents a "teachable moment."<sup>28</sup> Emergency care providers should take advantage of this to reinforce positive behavior (for example, praising patients for wearing their seat belt or helmets) and motivate changes in risky behavior or environments. As in all areas of specialized medical care, effective patient education requires training. Many hospitals have full-time health educators who can help emergency physicians develop strategies for patient education in the emergency department.

## Injury Prevention in the Community

Physicians of all specialties have many injury prevention opportunities outside the ED. They can serve as advocates for injury prevention legislation, educate their peers and neighbors on injury prevention, conduct injury prevention research, and

provide service to committees and organizations working to prevent injuries.

**Advocacy.** Advocacy is the art of communicating information that will persuade or influence a body to implement a law, policy, or action. An example is testifying before a state legislature or city council on an injury prevention bill under consideration. Because of their knowledge, expertise, and credibility, physicians can provide valuable information to legislators and others.<sup>29</sup> The North Carolina Medical Society has a long history of advocacy for injury control issues, and depends on community physicians to take the case for injury prevention to the legislature.

**Education.** Physicians who learn about injury prevention should pass the information on to colleagues and others.<sup>29</sup> In fact, teaching about injury prevention is a good way to learn about it.<sup>30</sup> Injury prevention education does not mean just public speaking. Physicians can educate others on injury prevention through articles in newsletters and journals and through the electronic media. Residency programs in emergency medicine, surgery, pediatrics, and family medicine should add injury control to their curricula and invite injury control specialists to speak at their grand rounds.

**Research.** Physicians who provide injury care are in a position to collect data to answer important injury prevention research questions. Emergency medicine journals publish injury studies and some have injury prevention sections.<sup>2</sup> Physicians interested in injury control should collaborate with injury prevention researchers from public health, trauma surgery, pediatrics, occupational medicine, and family medicine.

**Service.** Physicians can help their communities by contributing their knowledge and expertise to injury prevention efforts. As an example, each county in North Carolina has a child fatality prevention team, which reviews the deaths of children from the county and recommends ways to prevent such deaths. The state health director encourages physicians to participate on these teams.<sup>21</sup> Because they are familiar with the causes and consequences of injury (the usual cause of death in children), physicians are well suited to serve on such committees.

## Joining the Injury Prevention Team

Injury prevention is a team effort. Traditional injury prevention specialists (epidemiologists, health educators, and engineers), like physicians, have many years of specialty training. In order for physicians and other medical personnel to be effective members of an injury prevention team, they need to acquire skills not ordinarily a part of medical training. Physicians are most effective at advocacy, education, and research when they focus on one area of injury prevention and seek the assistance of injury prevention specialists.



A number of injury prevention resources in North Carolina can provide training and assistance. These include the University of North Carolina Injury Prevention Research Center

(IPRC) and the injury prevention unit within the North Carolina state health department. For further information, consult the IPRC web page at <http://www.sph.unc.edu/iprc> □

*Continued next page*

## **Appendix: Recommendations from *Injury Control in the 1990s: A National Plan for Action* (1993)**

### **Leadership: Building a National Program**

1. Establish and support a center for injury control within the Centers for Disease Control and Prevention to emphasize the importance of injuries as a public health issue and to lead a national program of effective action to address the problem.
2. Increase the recognition, awareness, and support of injury control at all levels of the public and private sectors. This education and communication campaign should include prevention of injuries, and acute care and rehabilitation of persons with injuries.

### **Surveillance: Defining the Problem and Identifying Risk Factors**

3. Mandate the inclusion of codes to identify external causes of injury (E-codes) in hospital discharge data whenever an injury is the principal diagnosis. Federal and private health insurance systems should require E-codes for reimbursement.
4. Develop, implement, and evaluate a uniform system to collect etiologic data on injury fatalities not related to motor vehicles similar to the system for motor vehicle traffic fatalities sponsored by NHTSA.
5. Link traffic and medical records to provide statewide surveillance systems for nonfatal motor-vehicle injuries.
6. Improve data on occupational injuries and worker populations. Promote standardized reporting of work-related injury fatalities on death certificates and improve coding of occupation and industry on death certificates.
7. Develop, implement, and evaluate national uniform data sets for trauma care and for rehabilitation.

### **Research: Finding the Solutions to Injury Problems**

8. Conduct biomechanics, behavioral science, and other research on a range of injury issues covering vehicle and road design and driver or pedestrian behavior. Research should address prevention and the reduction of severity of injury.
9. Delineate more precisely the risks and benefits of ready access to handguns and other firearms.
10. Determine the potential impact of improving and enforcing building codes and other safety codes to prevent injuries in the home and residential facilities.
11. Conduct research to identify occupational hazards and high-risk workers. Evaluate the effectiveness of new and existing worker protection strategies including engineer-

ing control, standards, inspection strategies, training, and education.

12. Evaluate the effectiveness of an inclusive trauma care system.
13. Conduct research on optimal acute care interventions and monitoring.
14. Conduct research on the health care system and rehabilitation services, such as access and payment, cost-benefit analyses, employment training, incentives to work, traditional and nontraditional services, therapeutic methods, and quality of life.

### **Programs to Prevent and Control Injuries**

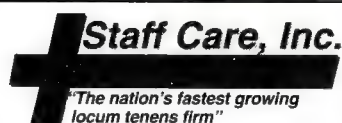
15. Continue the implementation of and strengthen programs for reducing impaired driving and improving occupant protection (safety belt use, child safety seats, air bag use); motorcycle, pedestrian, and bicycle safety; and speed limit enforcement to prevent motor-vehicle injuries.
16. Develop, implement, and evaluate programs to reduce injuries related violence. Areas of emphasis are injuries from firearms, injuries associated with alcohol and other drug use, early childhood experiences that affect the risk of future violent behavior or victimization, and mental and addictive disorders associated with suicide for there are effective treatments.
17. Develop, implement, and evaluate programs to reduce injuries related to home and leisure activities.
18. Develop, implement, and evaluate programs to prevent and control occupational injuries.
19. Develop, implement, and evaluate an inclusive trauma care system.
20. Formulate objective treatment guidelines for use by medical providers in the emergency phase of care.
21. Develop systems of care to increase capacity for delivering rehabilitation services for all people with injuries that produce significant limitations in function and evaluate the effectiveness for these systems. The goal of these systems should be focused toward independent living.

### **Training Injury Control Professionals**

22. Enhance the training of professionals (practitioners and researchers) at all levels of prevention, acute care, and rehabilitation. Develop and implement a strategic plan for national training based on national injury control priorities and on sound education technology.

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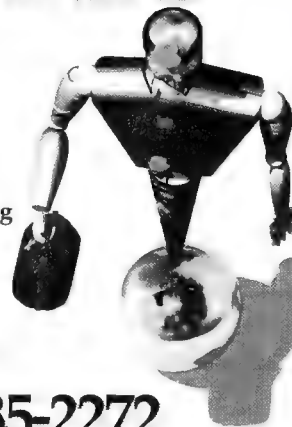
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# Injuries Associated With Personal Watercraft

## An Emerging Epidemic in Need of Legislative Action

Brian C. Tyler, MD, and Herbert G. Garrison, MD, MPH

The personal watercraft (PWC) is a cross between a motorboat and a motorcycle. Known commonly by their trade names—Jet Ski, Sea Doo, Wave Runner—PWCs are becoming increasingly popular on the waters of North Carolina and elsewhere. According to the US Coast Guard, more than 600,000 PWCs were in use in the United States in 1994, an increase of more than a 600% from 1987.<sup>1</sup>

Unfortunately, as the number of PWCs has increased, so have the fatalities and injuries associated with their use. In 1994, 56 US residents died and at least 1300 were injured in PWC-associated accidents.<sup>1</sup> In North Carolina, personal watercraft account for only 8% of all boats on the water but are involved in 41% of all crashes and 7% of all fatalities.<sup>2</sup> In 1994 there were at least 55 PWC crashes in North Carolina; in 1995 the number had more than doubled to 112.<sup>2,3</sup>

The exact number of persons injured in PWC crashes in North Carolina is not known. However, according to data collected by the Safe Waters Network of the Eastern Carolina Injury Prevention Program, at least 41 individuals sustained PWC-associated injuries in eastern North Carolina waters between Memorial Day and Labor Day 1996.<sup>4</sup> These injuries were serious enough to require attention in a hospital emergency department or urgent care clinic.

The popularity of PWCs is growing and more PWC crash victims are coming to health care facilities in our state. In this paper, we review PWC function, discuss the evolving epidemic of PWC-associated injuries, compare PWC-related laws of North Carolina and its localities with those of other states, and recommend changes in North Carolina law which, if implemented, would help stem the tide of PWC-associated injuries.

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### PWCs: Cheap, Fast, and Fun

A personal watercraft costs between \$3000 and \$7500. They weigh up to 600 pounds and can travel at speeds up to 70 mph.<sup>5</sup> Instead of a propeller, they are powered by a jet of water thrust through an exhaust at the back of the craft. Easy to maneuver and nearly impossible to capsize, they allow relatively inexperienced users to attempt stunts that would be impossible on larger craft. That does not mean, however, that they are easier to operate. For example, a PWC cannot be steered when the propulsion system is inactive, even though momentum may still carry the PWC forward.

Personal watercraft were introduced about 20 years ago, but did not catch on until the Kawasaki company developed the Jet Ski. The original PWCs required the operator to stand upright, a position that required agility and coordination. About five years ago, sit-down units became available and now represent about 95% of all PWCs on the water. Sales of PWCs constitute the fastest-growing segment of the recreational boating market; 200,000 PWCs were sold nationwide in 1995,<sup>6</sup> and larger PWCs—powerful enough to tow a waterskier—are the most rapidly expanding portion of the PWC market.<sup>5</sup> During the past decade, PWCs have become a mainstream hobby favored by families and middle-aged couples as well as young sports enthusiasts.

### PWC-Associated Injuries on the Rise

Not surprisingly, the greater the number of PWCs in use, the greater the number of collisions, injuries, and fatalities. As Figure 1 shows (next page), the incidence of PWC collisions has risen at an exponential rate between 1987 and 1994; by 1994, the number of PWC incidents reported nationwide was 3002, up from 376 in 1987. The number of injuries and fatalities went up as well; the annual number of injuries rose from 156 in

1987 to 1338 in 1994 and the number of fatalities, from five in 1987 to 56 in 1994.

Florida had a record number of PWC crashes in 1995—503 collisions, 361 injuries, and 12 fatalities. When injuries and fatalities were expressed relative to the number of watercraft, the relative risk of injury in a PWC was 673% greater—and for fatality, 203% greater—than in other watercraft on Florida waters.<sup>7</sup>

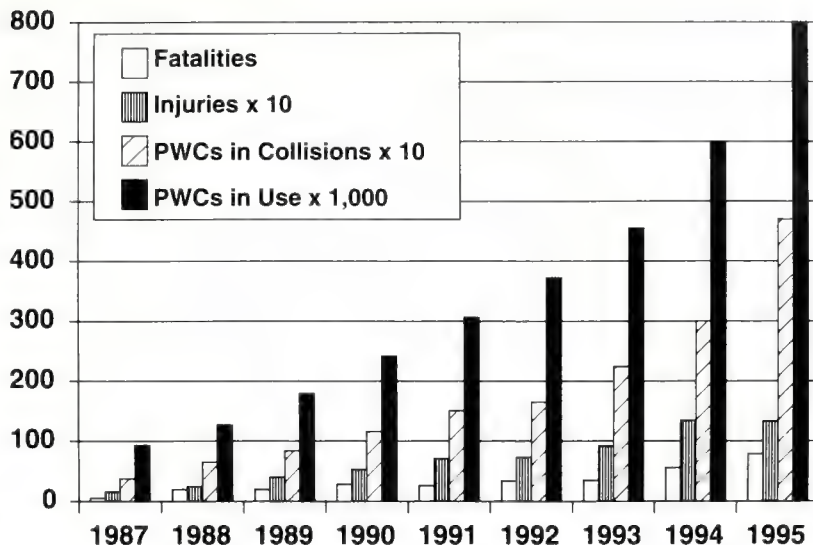
In North Carolina the statistics are similar. In 1995, 112 PWC accidents and two PWC-associated fatalities were reported to the NC Wildlife Commission.<sup>2</sup> This increase in PWC incidents has occurred at a time when boating in general is becoming safer. During the past 20 years, boating fatalities in North Carolina have dropped 115%, despite a 260% increase in the number of registered boats.<sup>2</sup>

During the 1994 and 1995 boating seasons, at least five people died using PWCs on North Carolina waters.<sup>8</sup> Each case illustrates one of the types of PWC-associated incidents that can result in death. In June 1994, a man from Charlotte was killed on Lake Tillery when his PWC was struck by a ski boat. In July 1994, a 25-year-old man, who was riding without wearing a personal flotation device, drowned when his PWC hit a sandbar and he was ejected. In August 1994, a 14-year-old boy died of head injuries after his PWC struck a bulkhead on a creek in Dare County. On the Fourth of July, 1995, an 18-year-old man from Charlotte died of massive chest injuries when the PWC he was driving swerved in front of another PWC which struck him in the chest. In September 1995, a 67-year-old was killed in a collision with another PWC on Badin Lake.

As elsewhere, the leading type of incident involving PWCs in North Carolina is collision with other boats (65% of all incidents). According to the NC Wildlife Commission, most of these collisions are due to operator inexperience, operator inattention, or excessive speed.<sup>2</sup> Injuries and fatalities associated with PWC use may reflect the fact that most operators are first-time boaters, unaware of the dangers of unsafe operation or of the "rules of the road." In Florida, nearly 80% of all PWC-associated fatalities involve PWC operators who have no formal boating training, and 46% of all PWC collisions involve operators with less than 20 hours of total boating experience.<sup>7</sup>

## Current Legislation in North Carolina

North Carolina, which is sixth in the nation in total PWC sales (4700 units sold in 1994) and has more than 26,000 PWCs in use on its waters,<sup>2</sup> needs to take a closer look at how to prevent injuries and deaths associated with the use of personal watercraft. Current laws (Table 1, next page) are insufficient to address this serious problem.



**Fig 1:** PWC use, collisions, injuries, and fatalities have grown dramatically since 1987. The 1995 data are unpublished; preliminary data from the US Coast Guard.

Many other states and even local North Carolina townships do more to ensure safer waters. In Maryland, anyone born after 1972 must have a boating safety certificate before operating any watercraft, and operators of a PWC must be 16 years or older.<sup>9</sup> In New Jersey, all PWC operators must carry certificates showing that they have passed a state-mandated boater education course or test. Also in New Jersey, the legal boating age has been raised to 16, and several boating offenses have been upgraded to make them comparable to motor vehicle offenses.<sup>10</sup> In Florida, it is illegal for anyone younger than 14 to operate a PWC.<sup>11</sup> In South Carolina, recently enacted House Bill 3320 restricts time of PWC operation, requires boat safety training for PWC operators under age 16, prohibits towing without a mirror, establishes maximum speeds when operating PWCs in close proximity to other objects, and prohibits wake jumping.<sup>12</sup>

Recently, about 100 representatives from 25 coastal communities in North Carolina, including Emerald Isle, Atlantic Beach, Indian Beach, Cape Carteret, and Morehead City, met to discuss PWC issues at the second annual Coastal Municipalities meeting. The group concluded that statewide legislation to more strictly regulate PWCs is needed to decrease a "rash of accidents" related to their use.<sup>13</sup>

Not all municipalities are waiting on the General Assembly. Emerald Isle has enacted regulations but they are unenforceable because the town has no law enforcement boat or enough personnel to administer the law.<sup>13</sup> Other North Carolina municipalities have enacted similar local laws. It is encouraging that local governments are taking a stand, but there are problems in relying on locals laws. Variability in statutes from town to town confuse the public such as visitors who are familiar only with the laws of their home jurisdiction. Also, many bodies of water used by PWC operators cross local jurisdictional lines. A person on a PWC may unknowingly



become a law breaker simply by traveling into a new jurisdiction. The solution is statewide legislation like that for highway travel. We need PWC regulations that are the same across North Carolina.

## New State Legislation

To circumvent the rising tide of trauma associated with the use of PWCs, new state laws with multiple provisions should be enacted (Table 2, below). In the following sections, we discuss the proposed requirements.

**Minimum age.** Currently in North Carolina, unsupervised drivers of motorized vehicles on state roadways must be at least 16 years old. Considering the hazards posed by inexperienced drivers, this is a very reasonable law. Few pedestrians would feel safe if they were forced to dodge cars driven by 12-year-olds. Similarly, people feel insecure swimming and playing in a body of water overrun by children driving PWCs at speeds in excess of 60 mph. There are no statistics indexing the age of PWC operators to the frequency of PWC collisions, but experience with motor vehicles suggests that younger drivers are more likely to operate vehicles in an unsafe manner and to have more crashes and injuries.<sup>14</sup> Restricting the age of PWC operators to a more mature group will increase safety.

**Mandatory licensing.** In addition to requiring that PWC operators be aged 16 or older, new legislation should mandate licensing for PWC operation. The experience with motorcycles shows the value of this. Nationwide, the licensing of motorcycle operators cut collisions from 169,685 in 1985 to 77,227 in 1994. Even more striking was the drop in motorcycle collision fatalities from 4584 to 2132.<sup>15</sup> We suspect that the growing number of PWC-associated collisions, fatalities, and injuries could be decreased similarly by licensing PWC operators.

Many of those who sell or rent PWCs may oppose mandatory licensing, but the license requirement will ensure that PWC operators understand the rules of the waterways. There is no other way to ensure that PWC operators are aware of safety issues unique to PWCs.

**Additional restrictions.** Other requirements would protect the public and PWC users from dangers associated with PWC operation. First, towing people behind a PWC should be restricted to PWCs that are equipped with towing mirrors. Ski boats can carry an observer to communicate between driver and skier, but PWCs have no observer to face the rear of the

craft. Mirrors give PWC drivers a direct line of sight to the vulnerable skier. Second, there should be maximum, "no-wake," speed limits for PWCs operated in proximity to swimmers and other objects. This would lessen the likelihood of collisions and injuries. Lastly, we should outlaw "wake jumping"—the practice of PWCs crossing close behind moving boats.

**Penalties.** As with any regulations, penalties must be in place to promote compliance with PWC laws. Verbal warnings should be used sparingly since few people will bother getting a license if their biggest risk is a finger-pointing. Instead, sizable fines should be levied for initial violations of PWC regulations. In addition, repeat offenders should have their PWC operating privileges terminated, and more severe penalties mandated for PWC operators found guilty of "driving" under the influence of alcohol.

**More than regulation.** Enacting the proposed provisions into law would be a first step in making the waters of North Carolina safer for its people. But new regulations are only part of the solution. We need personnel to administer and enforce the proposed PWC regulations. As part of a PWC bill, legislators should appropriate funds to substantially increase the size of the NC Wildlife Commission administration and enforcement staff.

## Conclusion

Use of personal watercraft has led to death and injury of PWC operators, passengers, and bystanders. The unsafe use of PWCs is a problem for anyone who desires to enjoy North Carolina's recreational waters. Personal watercraft can be as hazardous as automobiles and motorcycles, and should be subjected to simi-

**Table 1. A summary of existing North Carolina law related to PWC use<sup>16</sup>**

1. It is illegal to operate a PWC one hour before sunrise or one hour after sunset;
2. A PWC may not be used in a reckless manner;
3. A personal flotation device must be worn at all times while operating a PWC.
4. All boating regulations apply to PWC operators.

**Table 2. Proposals for statewide regulation of PWC use**

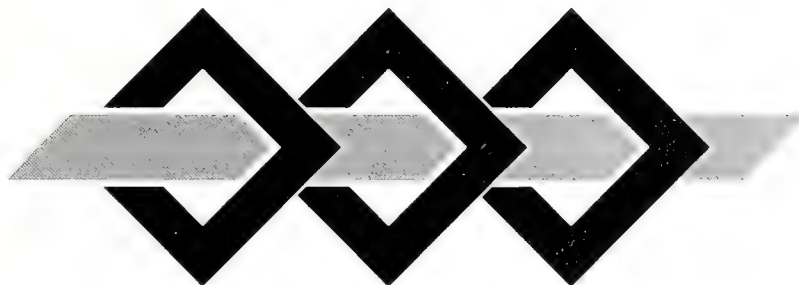
1. Establish 16 years as the minimum age to operate a PWC. This age requirement is consistent with the recommendations of the Personal Watercraft Industry Association.<sup>17</sup>
2. Make sure PWC operators are aware of the dangers involved with these high speed machines and the state laws regulating their use, by mandatory licensing of all PWC operators.
3. Enact multiple new restrictions on PWC use.
4. The new legislation should provide penalties in order to ensure compliance with the new regulations.
5. Allow no exemptions for those who live out of state or who rent the vehicles.

lar regulations. To accomplish this, we recommend that statewide legislation be enacted to require that PWC operators be of a minimum age, obtain a license, and obey the rules of the

waterways. Such legislation would help curb the evolving epidemic of PWC-associated deaths and injuries and keep the waters of North Carolina safe and fun. □

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# The History and Future of Emergency Medicine

John A. Marx, MD

Television programs such as *911*, *ER*, and *Chicago Hope* have portrayed, even romanticized, the field of emergency medicine. At the same time, various health care reformers, emphasizing cost efficiency, have vilified emergency departments (EDs) as sinkholes for health care dollars.<sup>1</sup> These divergent perceptions demonstrate considerable misunderstanding of the field, both inside and outside the house of medicine. It may be valuable, then, to study the past, appraise the current status of, and contemplate the major clinical and academic issues that face emergency medicine.

## Evolution of a New Specialty

The history of emergency medicine in the United States is relatively brief. It began in this country after World War II in response to epidemiologic, health care, and ultimately economic forces. The baby boom era greatly increased the population and led to urban sprawl. House calls by physicians became increasingly burdensome and fiscally improvident. Primary care doctors, saddled with busy office practices, began to triage patients away from the office directly to hospital care. Coincidentally, federal and third-party insurers were more likely to pay for hospital-based services than for those provided at home or in the office. Finally, the proportion of specialists rose.

Specialty certification began with the Board of Ophthalmology and then the Board of Surgery before World War II, but the concept of specialty certification truly blossomed after the war, when specialization became a "necessary" part of training. The combination of vanishing house calls, increasing numbers of indigent patients, an accent on specialty training, obstructed access to primary care, and economic support for hospital-based services compelled patients to flock to hospitals for care.

Hospitals began to transform themselves into centers where actual life-sustaining care could be provided. Coronary care units were developed by Pantridge in Ireland in 1969 and soon thereafter in the US.<sup>2</sup> Sophisticated diagnostic equipment such as computed tomographic scans and cardiac monitoring enabled emergency intervention. In addition, wartime experience in Korea and Vietnam demonstrated the promise of prehospital care and trauma management to US hospital systems.<sup>3</sup>

Unfortunately, prehospital and emergency care were virtually nonexistent. "Emergency rooms" were poorly equipped, inadequately staffed, and largely unsupervised. Often there was a single room with one nurse and a physician on-call from a distant site. In teaching hospitals, emergency care was left to junior house officers or even unsupervised interns; faculty were virtually absent. In nonteaching hospitals, emergency care was delegated to disaffected members of the medical staff, irrespective of their discipline, level of training, or experience. Foreign medical graduates, impaired physicians, and those disenchanted with previous practice—largely, individuals without experience or those who could not find work elsewhere—were placed in the ED. Meanwhile, the number of patients seen in emergency departments rose 367% during 1955 to 1971.<sup>4</sup> Understandably, physicians and hospitals struggled to find ways to improve the staffing of the emergency department.

In 1961, four physicians in Alexandria, Va., voluntarily left their office practices to form the first group exclusively providing full-time care in an emergency department. This staffing concept, created by Dr. James D. Mills, Jr., became known as the "Alexandria Plan." Two similar designs were established early in the same decade by physicians in Pontiac and Flint, Mich. The next requisite step was to define the core of knowledge necessary to practice in an ED and a system by which to acquire it.

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The American College of Emergency Physicians (ACEP) began as a convocation of eight individuals in August 1968. This meeting initiated the process of education and communication among emergency physicians. Then the first emergency medicine residency program was established at the University of Cincinnati in 1970. By 1975, there were 23 approved residencies with 100 residents, and two academic departments of emergency medicine. That year the American Medical Association's House of Delegates approved a permanent section on emergency medicine and accepted standards for emergency medicine residencies. In 1979, the American Board of Medical Specialties (ABMS) approved the American Board of Emergency Medicine as a conjoined modified board, making it the 23rd official medical specialty. Certification examinations began the following year. In 1982, special requirements for emergency medicine residency training programs were approved by the Accreditation Council for Graduate Medical Education, and in 1989, primary board status was granted by the ABMS. Since 1992, three subspecialties have developed within the field: pediatric emergency medicine, medical toxicology, and sports medicine.

Milestones in the maturation of emergency medicine as a clinical specialty began with the influential 1966 report of the National Academy of Sciences titled *Accidental Death and Disability: The Neglected Disease of Modern Society*.<sup>5</sup> This led to the Highway Safety Act, which required states to develop regional emergency medical service systems (EMS) (see Bailey, page 238, and Baker, page 245). In 1968, the American Telephone and Telegraph Company began to offer 911 emergency service. In 1971, the EMS Commission published *Categorization of Hospital Emergency Capabilities*<sup>6</sup> to assist hospitals in measuring their capacity to provide effective emergency care. And in 1973, the Emergency Medical Services Act started disbursing funds for comprehensive regional emergency care systems.

In the 1980s, emergency medicine became one of the fastest growing specialties as EDs, especially in large cities, became overcrowded with indigent patients. In 1981, the assassination attempt on President Reagan thrust emergency medicine into the spotlight. In 1985, the National Research Council published *Injury in America: A Continuing Public Health Problem*,<sup>7</sup> which highlighted the need for integrated prehospital, emergency, and in-hospital trauma care.

In 1986, Congress passed the Consolidated Omnibus Budget Reconciliation Act (COBRA). This legislation contained the Emergency Medical Treatment and Labor Act, an "anti-dumping" statute. It required that all patients presenting to emergency departments receive a medical screening examination and necessary stabilizing care without regard to their ability to pay (see Bitterman, page 260). This legislation (and the revised version in force today) has made emergency medicine the safety net for the disenfranchised segment of our population. To paraphrase William F. Buckley, it established the emergency department as the single point of universal access to health care in America.

## The State of the Specialty

The annual number of visits to EDs in this country has increased virtually without interruption since the 1950s. There was a small decline in 1995, but numbers rose again in 1996 to a level of just under 100 million patients. A significant number of these patients represent the more than 41 million uninsured in the US, and there is increasing use of EDs by the uninsured, underinsured, children, and the elderly.

There are approximately 5,000 EDs in the US, and 25,000 physicians practice there. Currently, more than 2700 residents are enrolled in 118 accredited emergency medicine training programs; and each year, these graduate some 800 physicians who become eligible for certification as emergency medicine specialists.<sup>8</sup> For more than a decade, emergency medicine has been one of the most competitive residencies for medical student applicants. ACEP, which began with eight physicians in 1968 now boasts nearly 20,000 members. In addition, there are more than 4000 members of the Society for Academic Emergency Medicine, the discipline's primary academic organization. The nation's academic medical centers now have 50 departments of emergency medicine, plus more than 20 divisions and sections. Four peer-reviewed journals publish research in emergency medicine and there is a multitude of textbooks, journals, and other publications devoted to the subject.

## The Future: Threats and Opportunities

Every specialty feels the pressures of managed care, rapidly advancing technology in diagnostics and communications, the shift from specialism to generalism, massive reconfigurations and amalgamations of hospitals and academic systems and, of course, the shrinking health care dollar.

**Economic pressures.** Early in this decade, health care reform and the advent of managed care led to EDs being cited as an often unnecessary expense. This notion may have originated in the cost-accounting and cost-shifting that began with the rise of Medicare and Blue Cross overhead matrices in the 1960s and 1970s. This led to the popular misconception that EDs have been high cost when, in fact, they have been high charge.<sup>9</sup> Today, ED charges are, in large part, used to assure the 24-hour availability of staff and equipment; to only a small degree can charges be ascribed to the practice of cost-shifting.

In reality, EDs account for less than 2% of US health care costs. It is true that many ED visits are prompted by problems that are urgent rather than emergent, but Williams, et al have shown that the average cost for such ED visits is comparable to that in private physician offices.<sup>10</sup> Recent evidence indicates that the ED is not overused and that cost-shifting from uninsured patients is minimal (because these patients account for only 12% of ED costs and 8% of ED admissions; they pay for 47% of such costs themselves<sup>11</sup>). Indeed, restricting ED use



could disproportionately burden minorities and the poor who often rely on the ED for care. Furthermore, the process of creating and operating clinics at off-hours can be more costly than EDs are. Uwe Reinhardt, professor of Economics and Public Affairs at Princeton, contends that "Nonemergency utilization of the emergency department requires the same resources that would be utilized in an office setting. The incremental societal costs of using the emergency department for primary care is actually cheaper than the incremental cost of building a new clinic facility to render care to these patients who were being turned away from the emergency department."<sup>12</sup>

Retrospective denials (by managed care companies and other insurers) of claims for ED care have led to so called "prudent layperson" legislation in several states and ongoing consideration at the federal level. This legislation protects patients from denial of payment for assessment of illness or injury which a reasonable (prudent) person believes would lead to severe or permanent morbidity if not attended to immediately. Payment is rendered irrespective of the ultimate diagnosis. Similar laws ensure coverage of medical screening examinations and stabilization measures. These consumer protection laws are aimed largely at managed care operatives and stress the importance of communication and flexibility among emergency physicians, patients, and insurers. (Also see Bitterman, page 260).

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"...intervention regarding domestic violence, and substance and alcohol abuse are meaningful societal missions in today's and tomorrow's EDs."

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## Clinical and Academic Emergency Medicine

In 1994, the Josiah Macy, Jr., Foundation, a highly regarded private philanthropy dedicated to improving the health of individuals and the public, convened a gathering of leaders from emergency medicine, other medical specialties, government, public health, and health care advocacy groups to look at workforce needs.<sup>13</sup> Among the major conference directives was the recommendation that access "to high-quality emergency medical care should be available for all persons who need such care." This was advanced in response to the fact that the specialty has only had sufficient tenure to supply residency-trained, board-certified emergency physicians to half the country's available positions.

In 1979, when certification in emergency medicine began, ABEM chose not to "grandfather" existing practitioners, and in 1988, it closed access to board certification via a practice tract. Therefore, the Macy Foundation recommended that the "number of residency positions in emergency medicine should not be reduced as planning for health care reform proceeds." However, the physician oversupply that now exists in other specialties has stirred fear in some for emergency medicine. As a result, two long-range workforce projection studies are in progress.

A third, and perhaps the most contentious, recommendation of the Macy Foundation was that "emergency departments

should be classified in a manner to reflect the level of care available for emergency patients and indicate whether or not the facilities are adequate and whether appropriately qualified and credentialed emergency physicians are available 24 hours a day." A task force of the Society for Academic Emergency Medicine proposes that categorization be restricted at first to hospitals with the highest level of care competency. Even this first step is likely to engender dispute, though, so collaboration will be sought with ACEP, and the Joint Commission on the Accreditation of Healthcare Organizations, and others. Providing this type of information to the patient is both laudable and entirely consistent with consumer advocacy in other areas.<sup>14</sup>

Various economic influences have tilted the balance from the inpatient to the outpatient setting. As a result, there is increasing emphasis on the use of short-term observation units such as chest pain evaluation centers. It is likely, too, that mid-level providers will play an ever-larger role in EDs in the future.<sup>15</sup> In addition, EMS systems are being asked to provide an increasing breadth and depth of care. Telemedicine and cellular transmission technology allow the emergency physician to be extended from the emergency department to the field.

This should permit more effective triage of patients to appropriate hospitals, more rapid implementation of key diagnostic and therapeutic measures, and even that the entirety of patient care be provided in the patient's home. Preventive care, injury control

programs, and intervention regarding domestic violence, and substance and alcohol abuse are meaningful societal missions in today's and tomorrow's EDs. They should prove to be cost-effective as well.<sup>16</sup>

## Conclusion

At a presentation to the Association of American Medical Colleges on May 4, 1993, emergency medicine was defined as a specialty that "encompasses the immediate decisionmaking and action necessary to prevent death or any further disability for patients in health crises. Emergency medicine is practiced as a patient-demanded and continuously accessible care. It is the time-dependent process of initial recognition, stabilization, evaluation, treatment and disposition. The patient population is unrestricted and presents with a full spectrum of episodic, undifferentiated physical and behavioral conditions."

Emergency medicine indeed has a unique biology, with an attendant knowledge base and skills obtainable through formal education, training, and certification.<sup>17</sup> Perhaps its purpose is made most poignantly clear by considering that the entryway into the medical system for life-threatening injury and illness, as well as many other unscheduled needs is through the emergency department, a portal of universal access. □

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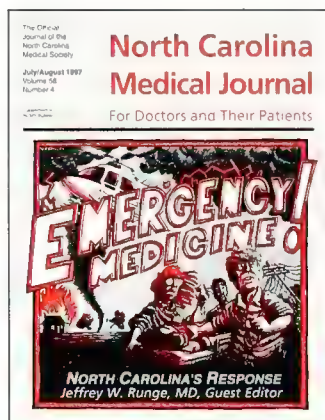


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# Emergency Medical Services for North Carolina's Children

Robert W. Schafermeyer, MD, and Karen Frush, MD

Emergency Medical Services for Children (EMS-C) is a program developed to ensure high-quality emergency health care for children. It is not separate from the EMS system, but serves as a resource for state education and training, and a resource for regulations on emergency health care needs for children.

During the 1960s, civilian, medical, and surgical communities began to apply the experience of recent wars in developing an organized EMS system. The Highway Safety Act of 1966 allowed localities to develop EMS programs. The Emergency Medical Services System Act of 1973 provided additional funding and stimulated further development of the system. At first, efforts were devoted to rapid intervention for cardiac arrest and transport for motor vehicle crash victims. Then, in the early 1980s, prehospital trauma care was improved by increasing medical direction from emergency physicians, increasing education and certification of prehospital providers, and designating state trauma centers.

EMS-C was born in 1984 when Senators Daniel Inouye (D-Hawaii) and Orrin Hatch (R-Utah) recognized that children, the great resource of society, deserved the same high-quality emergency health care that adults received. They convinced other senators and representatives of the need to educate health care providers in the management of acute childhood emergencies, and to ensure that the EMS system met the special needs of ill or injured children. Emergency physicians, recognizing the limited pediatric training and experience of prehospital providers, developed special education programs to improve the ability of emergency nurses and physicians to treat critically ill and injured children.

The federal EMS-C program has been in place for 12 years. By directing special federal funds, it has greatly improved the training and education of prehospital and hospital professionals in pediatric emergency health care. Senator Inouye's program began with funding to four states. Today, more than 40 states have received grants to develop education programs, improve

availability of care, provide public education on injury prevention, and provide medical equipment specific to the needs of children. The federal program is administered by the Maternal and Child Health Bureau (MCHB) of the Health Resources and Services Administration and the National Highway Traffic Safety Administration in the Department of Transportation.

The EMS-C program identified a philosophical shortcoming in the scope of EMS delivery. The EMS system traditionally had focused on prehospital and emergency department care of acute trauma. The federal EMS-C program encouraged EMS systems to be more inclusive, to recognize a continuum of care that includes injury and illness prevention, prehospital care, hospital care, rehabilitation, and a return to the home and primary care provider.

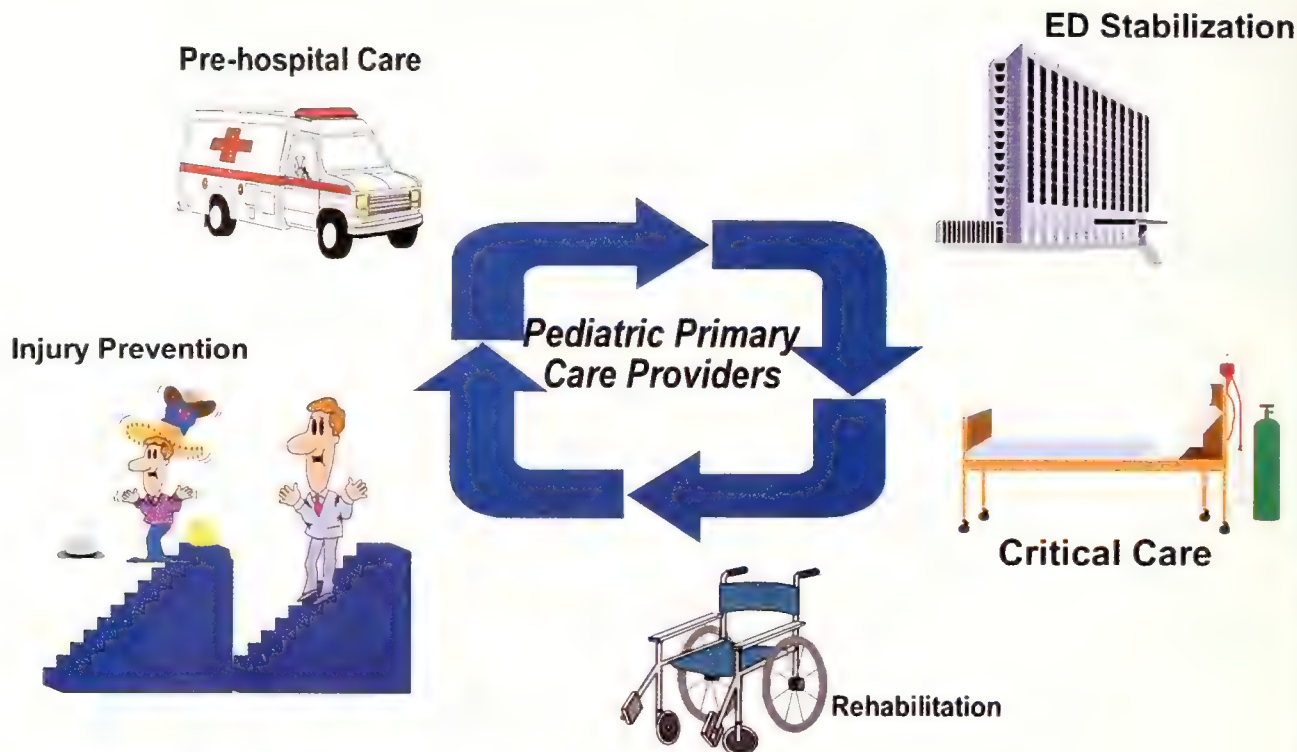
In 1993, the Institute of Medicine published a summary report and recommendations on Emergency Medical Services for Children. The report identified current problems and potential solutions, and documented improvements that had been implemented since the start of the federal program in 1984. The Maternal and Child Health Bureau and the Department of Transportation, working with leaders from emergency medicine and pediatrics, developed a five-year plan to implement the recommendations of the Institute.

## Pediatric Emergency Care in North Carolina

What about pediatric emergency care in North Carolina? In the early 1980s, the Charlotte Area Health Education Center (AHEC) and the North Carolina Office of Emergency Medical Services (OEMS) added pediatric emergency care education to their ongoing programs. This led to a significant increase in educational programs for emergency medical technicians, paramedics, nurses, and emergency physicians. A specific educational module was incorporated into the initial and continuing education programs of the Mecklenburg County EMS. Emergency medicine residency programs in North Carolina expanded the number of hours devoted to pediatric emergency care. Advanced Pediatric Life Support courses (covering initial management of life-threatening illnesses and injuries, and acute

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**Fig 1:** Emergency Medical Services for Children spectrum of care

resuscitation from critical illnesses and injuries) were offered to paramedics, nurses, and physicians. The Emergency Nurses Association of North Carolina developed educational programs on pediatric care.

In 1991, Drs. Arno Zaritsky and Bob Schafermeyer, through the Pediatric Critical Care Division at the University of North Carolina School of Medicine, received an EMS-C grant. The grant had four components, the largest of which concerned development of a prehospital and hospital pediatric emergency medicine education course (a 16-hour-long course covering important diagnostic and therapeutic issues in the management of seriously ill and injured children). Instructor courses were held across the state, and instructional kits (student manual, instructor manual, and slides) made available through the central and regional offices of the OEMS and AHECs. The new program complemented, but did not replace, nationally developed life support courses. More than 20 states have used the educational materials developed for this grant.

A second component of the grant was devoted to developing prehospital equipment guidelines, patient transfer guidelines, and treatment protocols for pediatric emergency care. These were then published and distributed to state EMS personnel. The third component involved compilation of emergency medical information, in collaboration with the Division of Pediatric Critical Care and the Injury Prevention Research Center in Chapel Hill. The fourth component was a regional meeting called to share information with surrounding states.

After the grant expired, the NC OEMS incorporated the EMS-C program into its ongoing operations. In May 1994, Dr.

Karen Frush was appointed to the EMS Advisory Council as representative of the North Carolina Pediatric Society and EMS-C. An EMS-C Task Force, consisting of representatives from emergency medicine, pediatric emergency medicine, nursing, trauma surgery, EMS, and child advocacy groups across the state, was appointed to identify educational and operational needs and to advise the Council and the Secretary of Human Resources on issues related to the emergency needs of children. This task force meets quarterly at the OEMS.

## Educational Efforts

In October 1995, the OEMS and EMS-C Task Force received an "Enhancement Grant" from the federal EMS-C program and MCHB. Such grants help states that have already received federal funding develop a pediatric emergency care system based on the national EMS-C spectrum of care (pFigure 1). The EMS-C Task Force identified the following priority needs for the North Carolina program: 1) the need to integrate primary care providers into EMS-C; 2) the need to develop a strong database describing pediatric emergencies and pediatric trauma; and 3) the need to develop an injury prevention program. In order to integrate primary care providers into EMS-C, the enhancement grant was used to develop a workshop for pediatric primary care providers (pediatricians, family practitioners, nurse practitioners, and physician assistants) across the state. The workshop takes two forms, one offered to meetings of primary care provider groups, the other individually in offices

or clinics. Because of an overwhelmingly positive response, the course is being implemented throughout the state. A "Train-the-Trainer" Conference was held in Durham in March to develop a network of instructors to implement the program.

The "Office Preparedness for Pediatric Emergencies" Workshop helps prepare an entire office staff for pediatric emergencies—even the receptionist who must recognize a pediatric emergency and contact EMS while health care providers begin initial stabilization. A critical part of this workshop is its focus on improving the relationship between primary care providers and EMS providers. It does this by staging a mock emergency. Local EMS units arrive on the scene, and once the child "patient" is stabilized, care is transferred to EMS. This scenario demonstrates the transfer of care from one health care professional (pediatric primary care provider) to another (paramedic). It also gives an opportunity to discuss the important role of EMS as members of the pediatric emergency care team, and demonstrates to primary care providers the role of EMS.

The "Office Preparedness" workshop also addresses the need for primary care providers to teach children and families about injury prevention. In North Carolina, as in the rest of the US, trauma is the leading killer of children. Many of these injuries could be prevented through a comprehensive injury prevention program. Immunization has decreased the number of childhood deaths due to disease; injury prevention can decrease the number of childhood deaths due to injuries. Young children (and their families) usually visit their primary care providers regularly to receive immunizations. These children can benefit from injury prevention teaching.

## **Injury Prevention Through "Risk Watch"**

On the other hand, children often do not have consistent contact with primary care providers after they reach school age. For this reason, an injury prevention project targeted directly at school children was identified as a priority by the NC EMS-C Task Force. With financial support from the Duke Endowment, NC EMS-C, working with the National Fire Protection Association and Lowe's Home Safety Council, has developed an injury prevention curriculum ("Risk Watch") for schoolchildren. Risk Watch is an experiential, action-packed curriculum. It was carefully designed to provide children and families with age-appropriate information that will lead them to make good safety choices. A national task force of injury prevention experts oversaw the development of the curriculum, which was pilot tested in North Carolina. The curriculum was introduced to teachers in Durham and Pitt counties at training sessions held in fall 1996. The first field test was completed in December 1996, and response from teachers, students, and parents was overwhelmingly positive. A second field test took place in the Winston-Salem area in spring 1997. After final analysis and revision, the program will be distributed nationally in 1998.

The Duke Endowment is committed to the implementation of Risk Watch in every county throughout North and South

Carolina. The Endowment also provided funds to evaluate Risk Watch. Researchers at East Carolina University are working with researchers from Interwest (in Oregon) to develop evaluation tools and to complete a comprehensive analysis of the Risk Watch program.

Another important contribution of NC EMS-C is the "community resource group" that helps teachers deliver safety messages to children. This program brings paramedics, firefighters, physicians, nurses, and community child advocates into classrooms to help teachers deliver Risk Watch messages. Many volunteers have helped, not only by providing support for schools, but also by offering themselves as positive role models for our children.

## **Education and the Future of EMS-C**

The new educational programs and community activities devoted to the spectrum of care encompassed by EMS-C (Figure 1) recognize the importance of prehospital care and a high level of training for EMS providers. The pediatric prehospital training course developed with initial EMS-C funds has been revised and updated; the new version will be offered this year at the annual "Emergency Medicine Today" conference. EMS-C is committed to securing funds to continue this course. Its cost is significant, but it is important to remember that a large number of NC EMTs are volunteers, and even paid providers have limited access to continuing education funds. Dr. Schafermeyer has led efforts to establish an EMS-C Educational Foundation to raise funds for long-term support of EMS-C educational programs in pediatric emergency care.

The pediatric emergency care system continues to develop in North Carolina, including a regional EMS-C network. With a continuing education grant from MCHB, North Carolina hosted the first Southeast Regional EMS-C Conference in March at the Washington Duke Inn in Durham. The conference covered EMS, EMS-C, and MCH in North Carolina, South Carolina, Georgia, Kentucky, Florida, Tennessee, Alabama, and Mississippi. Leaders from these states will convene later this year to discuss common concerns about the emergency care of children, to develop collaborative programs and research activities, to share resources (preventing duplication of effort), and to develop strategies to form a strong EMS-C network in our region. Future conferences are planned for Florida in January 1998, and in Tennessee in spring 1999.

The activities begun by NC EMS-C (and outlined above) represent the beginnings of a comprehensive pediatric emergency care system for our state. We have made a lot of progress. We have a network of health care providers who are committed to working together to improve the emergency care of children. Still waiting to be addressed are issues such as regionalization of care, critical care and transport, rehabilitation, and the effects of managed care on the emergency medical services system. We sincerely believe that by strengthening EMS-C we are strengthening the entire EMS system in North Carolina. □



# Research in Emergency Medicine

James E. Manning, MD

The field of emergency medicine arose in response to the need for better care for patients with emergent problems. So, too, emergency medicine research has evolved to provide insight and improvements in caring for acutely ill and injured patients. Most other fields of medical research are defined by association with a physiological system (e.g., neurology), disease process (e.g., infectious disease), patient population (e.g., pediatrics), or therapy (e.g., surgery), but emergency medicine overlaps with virtually every other specialty. The distinction is that emergency medicine research focuses on the acute care phase of medical illness and injury.

Research in emergency medicine seeks to advance our knowledge of acute pathophysiological processes, diagnostic evaluation, and therapeutic interventions. Laboratory studies focus on better understanding of the pathophysiology of acute disease processes and on developing new therapies applicable to both the emergency department and prehospital care settings; clinical research investigates the often acutely different aspects of medical care in the emergency department compared to office-based or hospital settings. These aspects of acute care are of interest to all other medical specialties, and researchers in emergency medicine see this intertwining of interests as a rich opportunity for collaboration. Emergency medicine researchers bring the perspective of dedicated acute care practitioners to interdisciplinary research efforts.

Since emergency medicine (EM) emerged as a specialty only in the 1970s, research in the field is relatively young. Fully developed research programs staffed by established and experienced senior investigators capable of mentoring new investigators will take generations to evolve. In order to gain access to experienced researchers, EM researchers often collaborate with mentors from other specialties or spend one or two years in formal EM research fellowships. Well-trained research fellows become capable junior research faculty and ultimately the mentors of those who follow. Research training, the acquisition

of funds for research facilities and equipment, and recruitment of research personnel constitute the infrastructure for future EM research. This process is under way, but will take time before EM is firmly established in the medical research arena.

One obstacle to research growth lies in the struggle to begin emergency medicine programs at academic medical centers. Only during the past five to 10 years have most US medical schools set up departments of emergency medicine—many still lack formal emergency medicine programs. The academic footing is important because it provides access to research training, research facilities, assistance in grant writing, and interdisciplinary collaboration. The growth of academic programs is crucial to the further development of research in emergency medicine.

Emergency medicine research is growing despite formidable competition for research funds, facilities, and faculty. In recent years, and despite of the lack of study sections for emergency medicine, EM researchers have obtained grant support from federal sources like the National Institutes of Health, thereby establishing the discipline in the research community. The need for research into acute illness and injury, and the specialty's dedicated research efforts promise a path of steady growth and development.

## Emergency Medicine Research Literature

Several journals are devoted primarily to research in emergency medicine. American publications include the *Annals of Emergency Medicine*, *Academic Emergency Medicine*, *American Journal of Emergency Medicine*, *Journal of Emergency Medicine*, *Emergency Medicine Clinics of North America*, and *Pediatric Emergency Care*. These journals are devoted to emergency medicine research, but their pages are open to authors of all specialties. The emergency medicine research literature is as diverse as the scope of practice of the specialty. Sections of the major EM journals reflect the discipline's research interests, such as emergency medical services/prehospital care, chest pain/myocardial ischemia, toxicology, cardiopulmonary resuscitation, infectious disease, pain control/

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anesthesia, airway management, trauma, pulmonary disease, acute pediatric disorders, emergency department administration, and injury control.

## Areas of Emergency Medicine Research

**Resuscitation.** Emergency medicine researchers have made major contributions to the field of cardiopulmonary resuscitation (CPR). Many of the laboratories most active in CPR research are located within departments of emergency medicine. It is a natural area of focus since most cardiac arrest patients are initially managed by EMS personnel under protocols developed by emergency physicians. EM researchers have made important contributions to understanding cardiac and cerebral ischemia and resuscitation therapy. Many of the presentations to the 1992 American Heart Association Conference on Advanced Cardiac Life Support and Emergency Cardiac Care were performed by EM researchers and were later published in EM literature.<sup>1</sup> The three definitive prospective, randomized clinical trials of high-dose epinephrine in cardiac arrest were performed principally by emergency physicians.<sup>2-4</sup>

**Trauma.** Emergency physicians investigate the epidemiology, acute pathophysiology, early diagnosis and initial therapy of trauma, especially the prehospital and emergency department aspects unique to trauma care. Laboratory researchers have developed new models of hemorrhagic shock that better simulate the hemodynamic responses to trauma and resuscitation.<sup>5</sup> Emergency medicine researchers have spearheaded the investigations that produce new trauma interventions, including the use of hemoglobin-based oxygen carriers, limited volume resuscitation, drug treatment of acute brain injury, and limited (emergency department) ultrasonography.<sup>6-8</sup>

**Emergency medical services.** Research into prehospital care has focused on expanding the scope of practice of paramedics, assessing prehospital therapy, evaluating training techniques, quality assurance, and improving emergency prehospital care for pediatric patients. The field use of 12-lead electrocardiograms and other rapid assessment tools allows early recognition of acute myocardial infarction and offers the potential for shortening the time from infarction to thrombolytic therapy or cardiac catheterization. EMS databases have led to better understanding of the patient population, patient care delivery, and operational aspects of EMS systems. Medical management of mass gatherings and mass casualty and disaster situations is also a focus of EM research.<sup>9</sup>

**Cardiovascular disease.** Emergency physicians are actively involved in acute chest pain evaluation, therapy for acute myocardial ischemia, acute hypertensive crises, dysrhythmias, and other cardiovascular disorders. Emergency department physicians are usually the first to see patients with myocardial infarction or other acute cardiovascular disorders. Develop-

ment and evaluation of new ways to rapidly and accurately diagnose acute myocardial infarction in the emergency department (for example, rapid assays for serum creatine kinase, myoglobin, and troponin) have been carried out largely by EM researchers. Emergency medicine researchers have been actively involved in clinical trials of thrombolytic therapy. Development of protocols to manage chest pain, including observation units, is a growing area of research interest. Emergency physicians often collaborate with cardiologists in the assessment of these newer diagnostic and therapeutic approaches.<sup>10</sup>

**Toxicology.** Emergency medicine physicians are involved in practice and research in the field of toxicology. Indeed, at many institutions clinical toxicology programs are divisions of the emergency medicine program. Toxicology research involves the epidemiology, evaluation, pharmacology, and therapy of intoxication. Research by emergency medicine department personnel has clarified therapy for snakebite and overdose of tricyclic antidepressants,  $\beta$ -blockers, calcium channel blockers, and cocaine, as well as diagnosis of polydrug overdose, decontamination procedures, industrial exposures, and the definition of specific antagonist agents, to name a few. Toxicology, like resuscitation medicine, is a principal focus of EM research because most toxicologic emergencies are managed by emergency physicians. Toxicology is recognized as a formal subspecialty of emergency medicine by the American Board of Medical Specialties.

**Pediatric emergency care.** Pediatric diseases and injuries seen in the emergency department touch on virtually every disease process in pediatrics. Understandably, pediatric emergency medicine research ranges from the management of cardiac arrest, airway distress, and major trauma to treating viral gastroenteritis, urinary tract infections, and otitis media to identifying signs of child abuse and assessing deficiencies in immunization. Emergency medicine researchers seek to better understand the unique character of pediatric emergencies and the social factors that affect emergency department use and ways to provide appropriate follow-up of pediatric patients. Pediatric emergency medicine is a recognized subspecialty of the American Board of Medical Specialties.

**Injury control.** Injury surveillance systems and injury control programs are rapidly enlarging areas of research. These include epidemiologic studies of the causes of injuries, severity of injuries, and long-term effects on individual and public health. Injury control researchers seek to implement and assess the effectiveness of interventions to prevent or limit the frequency and magnitude of injuries. This research is crucial to social programs and legislation as well as acute and chronic medical care. Recent injury control studies also have looked at motor vehicle-related injuries, alcohol-related injuries, domestic violence, intentional and unintentional firearm-related injuries, gang violence, sports injuries, home safety, school safety programs, injury prevention education, and other areas.<sup>11,12</sup>



## Informed Consent in Emergency Medicine Research

Emergency interventions often must be initiated without informed consent from either the patient or a legally appropriate representative.<sup>13</sup> In life-threatening conditions or situations, delay in care could have significant adverse effects on the recovery of the patient, and therefore physicians are allowed to render emergency care based on the idea of "implied consent" (the idea that any reasonable patient would want the emergency care provided if they were capable of making an informed choice).

The permission to provide treatment without informed consent does not mean that consent is not required for emergency medicine research. Clinical investigations of CPR or acute trauma care have been limited or blocked by inability to obtain legally acceptable informed consent when treatment must be begun within minutes in order to have a beneficial effect. Furthermore, patients may not be able to comprehend the consent process and no legally appropriate representative may be available. Even when a representative is available, the delay required to explain the benefits and risks of the study may jeopardize the chances of a beneficial effect. Because of this dilemma, the Food and Drug Administration and the Department of Health and Human Services recently amended the informed consent requirements to allow the study of new, potentially beneficial emergency therapies of life-threatening disorders.<sup>14</sup> The "Exception from Informed Consent" became effective November 1, 1996, and will greatly enhance our ability to study new therapies. These regulations, applicable only in specific circumstances and under strict supervision by the federal government, provide special protection to those patients who, by virtue of extreme medical circumstances, cannot provide effective informed consent.

## Research Training and the Future of Emergency Medicine

Emergency medicine research depends on having adequately trained young investigators, whose knowledge and expertise

will allow them to develop sound research programs and attain the necessary funding. Emergency physicians who want to pursue academic and research careers must get the structured training and mentorship that will lead to independent research capability. Emergency medicine fellowship programs must provide exposure to all of the principal components of the research process in order to produce successful, independent emergency medicine researchers.

More than 100 fellowships offer clinical and laboratory aspects of emergency medicine injury control, emergency medical services/prehospital care, air medical transport, pediatric emergency medicine, critical care medicine, toxicology, and others. Some of these fellowships lead to degrees such as

Master of Public Health. Laboratory investigations usually focus on a particular area such as cardiac and cerebral resuscitation or trauma and shock. The mentors for these fellowships are emergency physicians or researchers from other fields, or a combination.

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"Emergency medicine research depends on having adequately trained young investigators, whose knowledge and expertise will allow them to develop research programs and attain the necessary funding."

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## Emergency Medicine Research in North Carolina

North Carolina has four academic and emergency medicine residency training programs: East Carolina University School of Medicine, the Carolinas Medical Center, the Bowman Gray School of Medicine, and the University of North Carolina at Chapel Hill. ECU has one of the few formally established air medical transport fellowships in the country. Carolinas Medical Center offers a fellowship in toxicology that incorporates laboratory and clinical research. Carolinas Medical Center and ECU have prehospital emergency medical services fellowships. Carolinas Medical Center, ECU, and UNC-CH have active programs of research into injury control. Carolinas Medical Center and UNC-CH have departmental laboratory facilities and investigators devoted to research in the fields of toxicology, shock, and resuscitation physiology. Three of North Carolina's programs have dedicated PhD research faculty, and all four have clinician researchers participating in a variety of clinical investigations. North Carolina is making a substantive contribution to research growth and development in emergency medicine. □

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## Aphorisms of the Month

Daniel J. Sexton, MD, Section Editor

### "The Wit of Mark Twain"

It is better to deserve honors and not have them, than to have them and not deserve them.

Human beings seem to be a poor invention. If they are the noblest works of God, where is the ignoblest?

There's a breed of humility which is *itself* a species of showing off.

Laughter without a tinge of philosophy is but a sneeze of humor. Genuine humor is replete with wisdom.

The humorous story is American, the comic story is English, the witty story is French. The humorous story depends for its effect upon the manner of the telling; the comic story and the witty story upon the matter.

What a hell of a heaven it will be when they get all these hypocrites assembled there!

The man with a new idea is a Crank until the idea succeeds.

The first thing a missionary teaches a savage is indecency.

The human race consists of the dangerously insane and such as are not.

Scientists have odious manners, except when you prop up their theory; then you can borrow money of them.

Virtue has never been as respectable as money.

I was born modest; not all over, but in spots.

We have a criminal jury system which is superior to any in the world; and its efficiency is only marred by the difficulty of finding 12 men every day who don't know anything and can't read.

Few sinners are saved after the first 20 minutes of a sermon.

A sin takes on new and real terrors when there seems a chance that it is going to be found out.

I have stopped smoking now and then...but it was not on principle, it was only to show off. It was to pulverize those critics who said I was a slave to my habits and couldn't break my bonds.

There are no common people except in the highest spheres of society. The right word may be effective, but no word was ever as effective as rightly timed pause.

It is strange the way the ignorant and inexperienced so often and undeservedly succeed when the informed and experienced fail.

I haven't a particle of confidence in a man who has no redeeming petty vices whatever.

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sext002@mc.duke.edu*



# The Aphorism-Collector's Mind

Daniel J. Sexton, MD

Despite years of introspection, I am amazed at how blind I can be. I realized this recently after a hallway chat with *Journal* Editor Frank Neelon. He remarked that he thought I had "the collector's mind." At the time I thought he was referring simply to my interest in collecting aphorisms.

That interest began while I was in college. Then, as now, my father wrote to my five brothers and me every week. He often included an aphorism as a postscript. I saved these maxims and quips. Gradually I began to search for and save additional adages so that I could return the favor in my letters to him. With time this hobby became a source of fun for both my father and me. Gradually my collection and my knowledge grew. I began to recognize and enjoy new variations on old themes—and to realize that some witticisms were actually plagiarisms. When I told Dr. Eugene Stead about my hobby one day several years ago, he suggested I share my collection with readers of the *Journal*. Thus, a column was born.

But Frank had something else in mind when he spoke about the "collector's mind." To make his point he sent me a copy of an essay titled "The Collector's Mind."<sup>1</sup> It was written nine years ago by James Rehmus, then a young doctor from Shaker Heights, Ohio. Collectors, Rehmus explains, are passionate and purposeful people who have something in common with doctors. People who collect stamps, coins, baseball cards, bottles of wine—or just old bottles themselves—have character traits well suited for medicine. In fact, many doctors are naturally inclined to be collectors. In my personal circle of friends and colleagues I can count individual doctors who collect rocks, butterflies, old medical instruments, stamps, and baseball cards.

Furthermore, many of those colleagues who do not have collections of possessions still have *collector's minds*. Most experienced doctors eventually become connoisseur collectors of medical knowledge. This mind-set can be found in younger, less experienced doctors, but it is rare. Doctors with collector's minds find passion, purpose, constancy, and intellectual fun in their daily work. As Rehmus explains, "...doctors [with a

collector's mind] collect and use medical knowledge the way an oenophile stocks his cellar. They are eager in their pursuit of quality, and perhaps quantity, but just as vigorous in their desire to see their collection used and used well."

Doctors with collector's minds accumulate, over time, a personal collection of knowledge and experience about patients and disease that grows more satisfying as it expands. The pursuit, cataloguing, storing, and retrieving of items for this collection fascinate them well into their old age. As it grows and improves, each private collection of medical lore becomes a source of personal delight like my colleagues' private collections of exotic minerals or butterflies. Revealed nuances in disease and patients gradually lead to secret enjoyment and satisfaction, and the value of the collection grows with time. Sharing the collection with students, colleagues, and patients increases the satisfaction and its value. Just as a stamp collector is likely to look on a rare or special issue stamp with intense curiosity made meaningful by years of reading, observation, and experience, the collector-physician is likely to look at a patient with polyarteritis nodosa or meningococcemia with fascination, respect, and maybe even awe. The same fascination and interest can, with proper nurturing, be stimulated equally by a hypochondriac or by a toenail distorted by a fungal infection. Each new case reveals subtleties and variations that interest, amuse, and educate the collector.

Fostering a collector's attitude takes time, purpose, passion, patience, insight, and more than a little humility. I am sure Frank already knows this. Even though I have gradually developed my collector's mind over the past several decades, I did not realize it until 25 years after I graduated from medical school. That makes me wonder what else I have been missing. □

## Reference

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Dr. Sexton is Professor, Division of Infectious Diseases, Box 3605, Duke University Medical Center, Durham 27710. He welcomes fellow collectors to share their aphorisms with him and our readers. Please send all submissions to: Daniel J. Sexton, MD, Box 3605, DUMC, Durham, NC 27710 or by e-mail to [sexto002@mc.duke.edu](mailto:sexto002@mc.duke.edu). See overleaf for this issue's column.

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*Continued next page*



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For further information please contact Harry H. Summerlin, Jr. MD, Director or Jackie Hallum, Administrative Coordinator, Regional Outreach Programs, Mountain Area Family Health Center, 118 W.T. Weaver Boulevard, Asheville, NC 28804; 704-258-0670.

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**Info:** sponsored by American Medical Association and Canadian Medical Association, contact Elaine Tejcek, Project Manager, 312/464-5073, fax: 312/464-5841, e-mail: [elaine\\_tejcek@ama-assn.org](mailto:elaine_tejcek@ama-assn.org)

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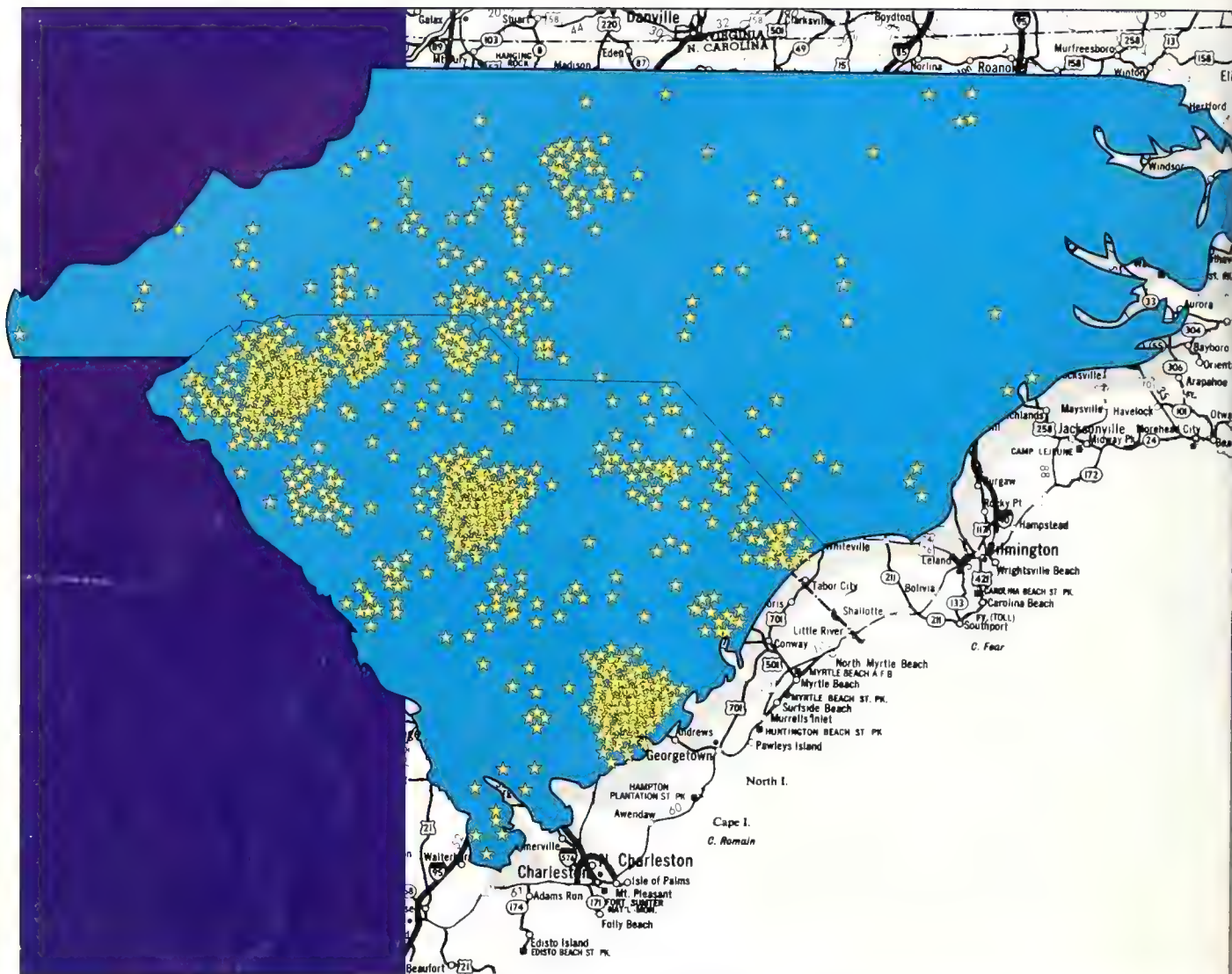
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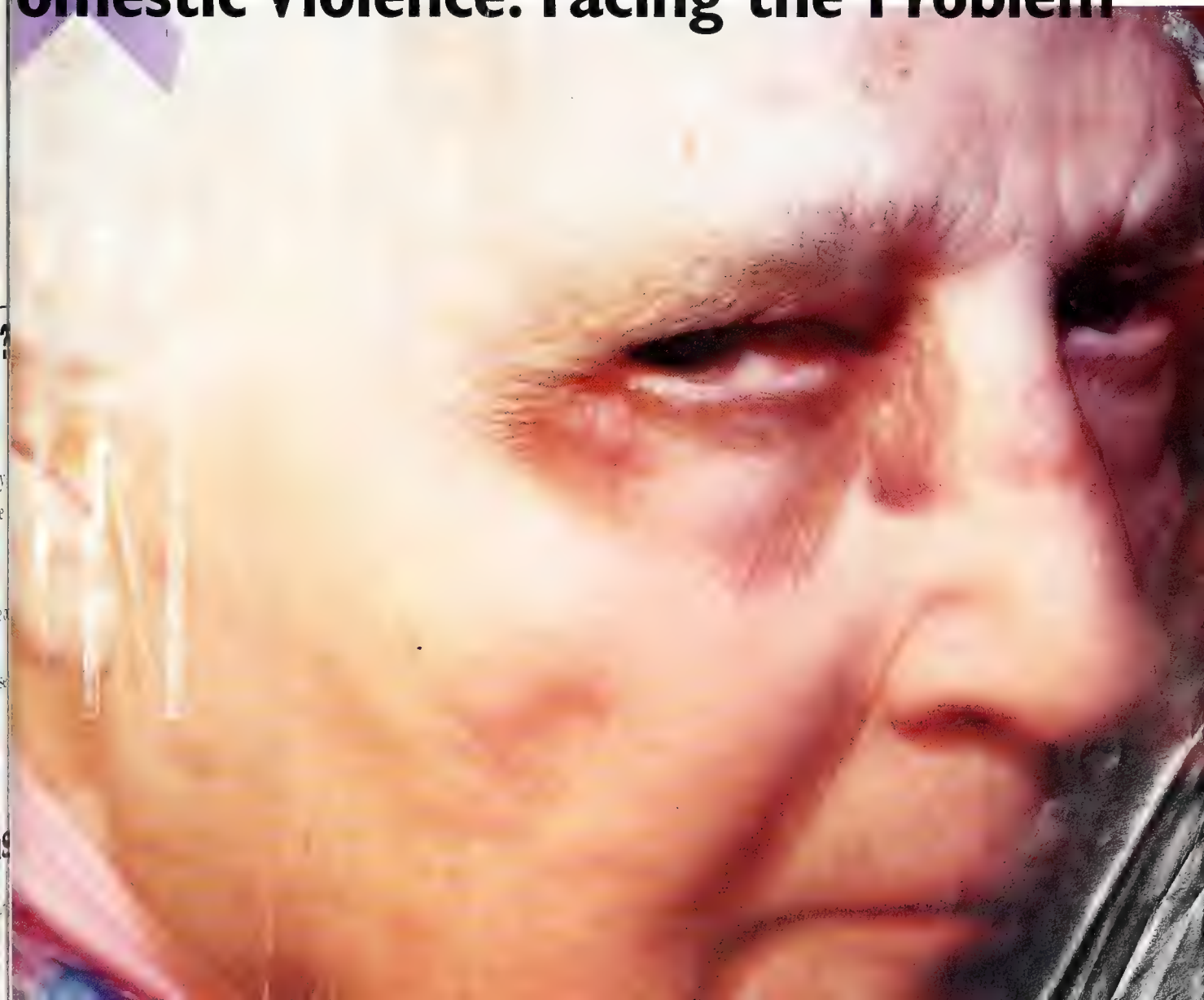
# North Carolina Medical Journal

For Doctors and Their Patients

## SPECIAL SECTION

by E. Goodman, MD, FACEP, Guest Editor


## Domestic Violence: Facing the Problem





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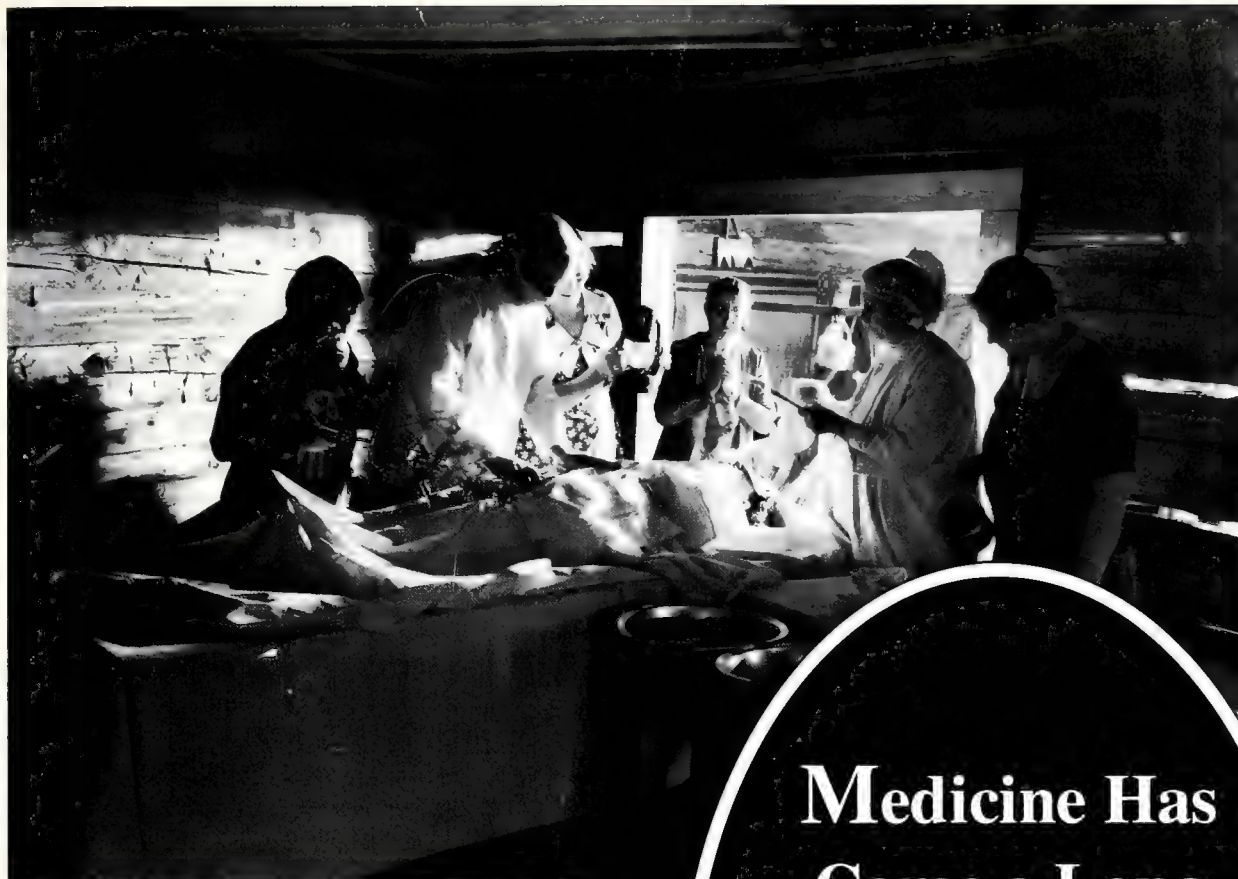


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## NORTH CAROLINA MEDICAL JOURNAL

For Doctors and their Patients

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# North Carolina Medical Journal

## FOR DOCTORS AND THEIR PATIENTS

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September/October 1997, Volume 58, Number 5

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# From the Guest Editor

Peggy E. Goodman, MD, FACEP,  
Assistant Professor, ECU Department  
of Emergency Medicine, and Chair,  
NCMS Domestic Violence Committee



A virtually silent epidemic of domestic violence affects millions of men, women, and children in North Carolina, the United States and throughout the world. An abusive relationship not only means a dysfunctional interaction between two partners, its widespread effects spill over on to children, other relatives, friends, and coworkers. Ultimately, domestic violence burdens the community, the medical and legal systems, and society as a whole. In fact, the problem is so large that, in order to address it effectively, we must have an interdisciplinary approach—to treat illness or injury, to provide safe shelter, counseling, and other interventional services, and to protect victims from further violence.

Education is one of the most important allies of medicine; our profession continuously seeks new knowledge—to improve the care we give to our patients, and to provide patients with the resources that will help them lead safer, healthier lives. The articles on domestic violence in this issue of the *Journal* were written in an attempt to further these goals.

If doctors are to understand domestic violence, then they must understand its “disease” aspects. A “first-person” account of the “pathophysiology” of domestic violence, provided by a survivor, describes the evolution of emotional abuse through the generations of the author’s family, including her current relationships with her ex-husband, children, other family members and society, and her interaction with the medical community. Following this rarely seen side of domestic violence, Jan Capps and I provide data on the magnitude of partner violence in primary and acute care presentations as well as its impact on chronic care and specialty-based medicine.

Beyond learning to recognize domestic violence, health professionals must know what types of follow-up and reporting are available or necessary, both for our practices and our patients. Nancy Chescheir discusses the physician’s role in follow-up, Alan Brown discusses programs available to treat the abuser, and David Gremillion discusses the rationale behind the current North Carolina reporting requirements. The Health Watch insert lists all current domestic violence programs and abuser counseling programs in North Carolina.

Additional reference materials on domestic violence will be sent in the October issue of the *NCMS Bulletin*. These include a pocket reference card containing domestic violence screening guidelines and references, and a list of North Carolina speakers willing to talk about domestic violence. Over the years, the North Carolina Medical Society has been a leader in efforts against many challenging medical problems. Our patients are better for this. I sincerely hope that the collection of articles on domestic violence in this issue will not magnify the enormous obstacles still to be faced, but emphasize the optimism about our continuing progress. □

## Letters



### Pondering Physician-Assisted Suicide To the Editor:

Hospital Ethics Committee (HEC) members at Duke University Medical Center engage in continuing education to prepare to address ethical issues that arise in caring for patients at Duke. The rapidly changing environment in which medicine is practiced makes it necessary to modify our curriculum according to emerging ethical issues.

During the HEC’s last meeting, we discussed physician-assisted suicide. In preparation, HEC members read two recent articles from the *NCMJ* that addressed this topic: “Physician-Assisted Suicide: Lessons from the Kevorkian Trials” (*NCMJ* 1997;58:25-9) by Bernard Carroll, and “Physician-Assisted Suicide: A Bad Idea, Carroll and Kevorkian Notwithstanding” (*NC Med J* 1997;58:130-3) by Harmon Smith and Dawn Brezina.

These readings provided a foundation for a spirited debate among HEC members and guests Professor Harmon Smith from the Divinity School, and Professor Melvin Shimm from the School of Law. The readings and the session alerted us to some of the aspects of this important social and medical issue that our ethics committee is likely to confront in the future.

James Travis, PhD, Chair,  
Duke Hospital Ethics Committee  
Jeremy Sugarman, MD, MPH, MA, Co-Chair,  
Ethics Consultation Service  
Duke Medical Center, Durham, NC 27710  
sugar001@mc.duke.edu via Internet

### Special Issue a Resource for Local EMS

#### To the Editor:

You and your folks at the *Journal* continue to turn out success after success! The July/August issue emphasizing Emergency Medicine services is just great.

From my small niche in the emerging world, this particular issue will be a big help in assisting our local EMS system and the community college training program.

W. Grimes Byerly, MD, FACS  
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# Not in My Practice

## A Look at the Pervasive Consequences of Domestic Violence



Peggy E. Goodman, MD, MS, FACEP, and Jan Capps, MPH

Domestic violence is chronic abuse of a current or former intimate partner by another partner. It is characterized by a pattern of coercive control and increasing entrapment of the abused victim. The partners can be heterosexual or homosexual; the intimate relationship, ongoing or terminated. Batterers can use physical, sexual, psychological, or economic abuse to control the partner.

Unfortunately, domestic violence is too often considered a private matter between adults, and therefore not subject to outside scrutiny or intervention. This attitude keeps victims from reporting abuse to family, friends, or professionals who might be able to help. The medical community recently has shown a greater awareness of the problem, but its response is still limited. In this article, we survey the epidemiology of domestic violence in an attempt to increase physician awareness of the problem, to change the perception that patient-victims of domestic violence may exist, but "not in my practice."

### Risk Factors for Domestic Violence

The single factor that most strongly predicts risk of becoming an adult victim of abuse is being female.<sup>1</sup> The US Department of Justice estimates that 95% of assaults on spouses or ex-spouses are committed by men against women.<sup>1</sup> Women are six times more likely than men to be victims of violence committed by an intimate partner. In addition, men generally perpetrate more severe and more multiple aggressive attacks on their partners during a violent incident than do women.<sup>2</sup>

The other consistent risk factors for abuse are being younger, being in a long-term sexual relationship with a male, being divorced or separated, or having a high level of violence in the

family of origin.<sup>2</sup> These risk factors apply to many women, so they are not useful in predicting which women will be abused.

Studies looking at differences in rate of domestic violence by socioeconomic status or race have produced widely disparate findings. There is no conclusive evidence that either characteristic is a risk factor for domestic violence.<sup>2</sup> In fact, in one survey, 14% of male and 31% of female physicians acknowledged that they themselves had a history of child abuse or of physical abuse as an adult. Some early studies on prevalence of domestic violence were conducted at battered women's shelters, emergency departments, and public clinics. Since poorer women are likely to use these facilities and since minorities are disproportionately poor, it was mistakenly inferred that minority and poor women are more likely to be battered. There is no conclusive evidence that poor women are at greater risk than middle- and upper-class women, but middle- and upper-class women more often have the economic resources to help themselves out of their situations.

### Prevalence of Domestic Violence

Economic and psychological forms of abuse can be as damaging as physical violence, but their epidemiology is not as well documented because there is no comprehensive surveillance system for domestic violence in the state or in the nation. Data from national and regional studies that have examined domestic violence can provide background information on the scope and nature of this important public health problem, but these figures tend to underestimate the number of victims because they typically do not include individuals who are very poor, who do not speak English, or who are institutionalized, hospitalized, homeless, or incarcerated.

Two to eight million women are physically abused by husbands, former husbands, boyfriends, or lovers each year.<sup>1-3</sup> Women are more likely to be assaulted, injured, raped, or killed by a current or ex-partner than by all other kinds of assailants combined. A 1985 national study of couples found that approximately one of every eight husbands had physically assaulted his

Dr. Goodman is Chair, NCMS Domestic Violence Committee, and Assistant Professor, Department of Emergency Medicine, East Carolina University School of Medicine, Greenville. Ms. Capps is a Public Health Program Consultant, Injury Prevention Branch, North Carolina Department of Environment, Health and Natural Resources, Raleigh. She also serves as Consultant, NCMS Domestic Violence Committee.

wife in the previous year, and that in more than one-third of cases there were acts of severe aggression (punching, kicking, choking, beating, or using a knife or gun).<sup>2</sup> Another study found that within one year, 7% of married or cohabitating American women had been physically abused, and 37% had been verbally or emotionally abused by their spouse or partner. In one poll, 21% of 1793 women (and two-thirds of those who were separated or divorced) reported having been physically abused at least once by a partner.<sup>2</sup>

Domestic violence is repetitive. One study found that during the six months following an incident of domestic violence, approximately one-third of women were victimized again, and about one-fifth had been a victim of at least three assaults in the prior six months. Another study found that 45% of the husbands who beat their wives did so three or more times a year.

From July 1995 through June 1996, domestic violence programs in North Carolina counted approximately 31,000 primary and 21,000 secondary victims of domestic violence. These programs provided shelter to 13,700 victims, but had to deny 1700 victims due to lack of space.<sup>4</sup> A North Carolina survey indicated that magistrates handle, on average, six domestic violence cases a week—a total of 200,000 domestic violence cases annually.<sup>2</sup> This works out to one case for every 13.5 adult North Carolina women each year, but this underestimates the prevalence of domestic violence because many women do not file complaints with magistrates.

Abuse may be the single most common cause of serious injury to women.<sup>3</sup> Over one-half of women murdered in the US are killed by current or former partners. In NC between 1988 and 1993, 1066 women were murdered, 70% by former or current intimate partners. A history of domestic violence was noted by medical examiners in 20% of the partner homicides.<sup>2</sup>

Sexual abuse often accompanies physical abuse. Until 1993, spousal rape was not considered a crime in North Carolina, but up to 14% of all married women and at least 40% of battered wives report being raped by their husbands.<sup>5</sup> One-half of all rapes of women over age 30 occur as part of the battering syndrome; 35% of all rapes are committed by an acquaintance or intimate partner. In one survey, 12% of ever-married women reported that their husbands had forced sexual intercourse on them. Spousal rape had the greatest long-term effect on the victim of any type of rape.<sup>5</sup>

From July 1995 to June 1996, sexual assault programs in NC served about 6000 primary and 2500 secondary victims of sexual assault. They provided shelter to 1300 sexual assault victims, but denied shelter 200 victims due to lack of space.<sup>4</sup>

## **Rationale for Universal Domestic Violence Screening**

All women patients should be asked about domestic violence. Screening based on assumed risk factors or indications of violence will miss many battered women. Studies have shown that physicians identify as few as 5% of all battered women.<sup>6</sup>

Questioning certain women but not others means the provider is acting on assumptions or prejudices about socioeconomic status or race. Asking all women conveys the message that domestic violence is an important health concern and can happen to anyone. Since screening can lead to education about violence and about response options for battered women, it can serve as a form of primary prevention. Due to the strong linkage of spousal and child abuse, screening for domestic violence may also reveal child abuse.

Effective treatment of a battered woman means treating the physical and psychological symptoms and consequences of current and past domestic violence. It also means addressing the roots of the problem. Treatment or referral for symptoms without recognizing and acknowledging the role of violence provides little long-term benefit. And since domestic violence often affects patient compliance and follow up, battering needs to be identified to avoid prescribing harmful or inappropriate therapies.

A physician's response to a battered woman can affect the woman's self-respect and dignity. Ignoring abuse reinforces feelings of humiliation and compounds damage already done to the woman's battered sense of self-worth. By not responding to abuse, physicians inadvertently reinforce the actions of the batterer. When no one intervenes, the batterer presumes that there are no restrictions on or consequences to his actions. Conversely, a comprehensive and appropriate response can not only lead to good health care and prevention of further harm, it can also affect the woman's perception of herself, her situation, and her ability to make changes in her life. A provider who leaves the implication that the woman is "the problem" reinforces the messages she gets at home. In contrast, the physician who says "You don't deserve to be hit" and "You are not to blame" gives a valuable and supportive message. Battered women often trust the advice of their physicians. When their physicians respond appropriately, they are supported.

Failure to diagnose abuse may contribute to a woman's sense of entrapment. Often battered women seek help only to find that the seriousness of the abuse is dismissed or minimized. She may find herself blamed or be given inappropriate advice. If the woman has become isolated from a support network, if she has met resistance from family, friends, and other service providers, the physician may be the only person with whom she can speak openly and confidentially about the abuse. Even so she may not feel free to broach the subject, she may be hesitant to talk about the abuse, unless the doctor clearly shows interest, concern, and a willingness to support her. All this means it is the doctor's job to initiate discussion of domestic violence.

The costs of domestic violence include: emergency and long-term care and shelter for victims and their children; treatment for victims, their children, and batterers; and legal expenses including police and court intervention. National Crime Survey data estimated the annual morbidity associated with domestic violence at 21,000 hospitalizations, 99,800 hospital days, 28,700 emergency department visits, and 39,900 physician visits. Total annual medical care costs were estimated



at \$44,393,700 in 1980 dollars.<sup>3</sup> Since domestic assaults are underreported, National Crime Survey figures underestimate the prevalence, morbidity, and costs of domestic violence by 10- to 40-fold.<sup>2</sup> A study at Rush Medical Center in Chicago found that the average charge for medical services to abused women, children and elderly amounted to \$1633 per person per year. By extrapolation, this means a national annual cost of \$857.3 million. A National Institute of Justice report found that aggregate out-of-pocket costs of rape approximate \$7.5 billion. These estimates do not address the pain and misery inflicted on battered women or their children. But economic costs alone warrant addressing domestic violence.<sup>5</sup>

## Screening for Domestic Violence in Clinical Settings

Health care providers need to recognize that many conditions for which their patients seek help are related to domestic violence. Most education about abuse has been directed at emergency and primary care physicians, but the physical, psychological, emotional, and sexual manifestations of abuse lead to visits to doctors in all specialties. Health care providers should be aware of the many ways in which domestic violence already exists, unrecognized, in their patient population. Table 1 provides a summary of how to screen for domestic violence. This information will appear as a special pullout card in the *NCMS Bulletin* published in October. Copies will be available from the NCMS (800/722-1350).

**Emergency Medicine.** Emergency departments (EDs) see many domestic violence victims because they treat acute injuries and they provide medical care 24 hours a day regardless of ability to pay. Battering is the single most frequent reason women seek attention at hospital EDs.<sup>7</sup> It accounts for 50% of all serious injuries, 25% of female suicide attempts, and 4000 homicides each year. The types of injuries inflicted by battering tend to differ from those induced by other causes. The patterns of battering injury include contusions or minor lacerations of the head, face, neck, breast, or abdomen.<sup>8</sup> Unintentional injuries are more likely to involve the extremities. One study found that women presenting to an ED for treatment of head, neck, and facial injuries were 12 times more likely to be victims of domestic violence than women seeking treatment for injuries in other locations.<sup>9</sup> Specific injuries (perforated tympanic membrane, orbital fractures, subconjunctival hemorrhage, hyphema, eye globe rupture, ventral tongue injuries, loose or fractured teeth) are unlikely to be caused by "clumsiness" and warrant a detailed history to determine true mecha-

nism of injury.<sup>10</sup> Otolaryngologists, ophthalmologists, dentists, maxillofacial and plastic surgeons need to be especially aware of these patterns. Abused women likely have more multiple injuries, injuries in different stages of healing, and injuries on one side of the body.<sup>2</sup> Patients with subtle complaints, such as headache, fatigue, or abdominal pain may be referred to specialists or to primary care physicians with little or no follow-up.

Because many battering injuries are not perceived to be life-threatening, physicians may not spend much time determining their cause. They rarely question the patients' explanations (tripping, banging into doors, falling down stairs, or "general clumsiness"). Even when the type, location or age of injuries do not correlate with the reported cause, the underlying etiology may not be adequately addressed because of concerns

**Table 1. Domestic Violence Screening Guide**

**Screen** (all patients, in private; suggested questions):

- ◆ Do you feel safe in your current relationship?
- ◆ Did someone cause your injuries or trigger your illness?

**History** (clues):

- ◆ Reluctance to speak in front of partner, evasiveness
- ◆ History inconsistent with injury/illness
- ◆ Multiple episodes of "clumsiness," miscarriages
- ◆ Stress-related symptoms, vague complaints
- ◆ History of suicide attempts, substance abuse
- ◆ Delay in seeking medical attention, noncompliance

**Physical** (clues):

- ◆ Excess clothing/accessories/makeup covering injuries
- ◆ Injuries in patterns or multiple stages of healing
- ◆ Injuries during pregnancy
- ◆ Injuries in central areas (face, neck, abdomen, genitals)
- ◆ Injuries in protected areas (behind ears, under breasts)
- ◆ Defensive injuries

**Treat:**

- ◆ Expose patient to check for occult injuries
- ◆ Maximize current rx; minimize prescriptions, MD referrals
- ◆ Relay concerns to consultants
- ◆ Recognize personal/professional biases/limitations
- ◆ Provide message that abuse is not deserved or acceptable
- ◆ Assess safety, provide information to develop safety plan

**Document:**

- ◆ Use patient's exact words when possible
- ◆ Detailed descriptions of injuries, with body map or photos
- ◆ Document treatment, consults, referrals, prescriptions, follow-up

**Referrals:**

- ◆ If partner cancels appointments, consider it as a "red flag"
- ◆ Hospital, city, county departments of social service
- ◆ Child protective services, if applicable
- ◆ Local shelter
- ◆ Legal aid society, bar association
- ◆ Law enforcement (police, sheriff's departments)

about time, privacy, and staffing constraints in the ED. One study found that 43% of battered women had presented to EDs six or more times for abuse-related injuries, but in most cases, the victimization history underlying the injuries was never identified by health care providers.<sup>2</sup>

**Primary Care.** Physical, sexual, and emotional abuse leads to many chronic health problems for which battered women seek help. These problems include headaches, chronic pain, depression, chest pain, heart palpitations, dyspareunia, pelvic pain, sexually transmitted diseases, choking sensations, fatigue, paresthesias, and nervousness. Physicians may search for causes of these complaints without recognizing that they are symptoms of abuse. In many cases, the patients are labeled as complainers, annoyances, or hypochondriacs. Since primary care providers often have close, ongoing relationships with their patients, they are in a good position to identify and help battered women.

**Obstetrics and Gynecology.** Obstetricians and gynecologists serve as primary care physicians for many women. They can play a vital role in detecting women who are victims of abuse, and in offering appropriate care. Studies in North Carolina clinics have found that 3%-14% of pregnant women reported physical abuse during pregnancy and 26%-30% reported ever experiencing physical abuse.<sup>2</sup> During pregnancy, battering is more common than rubella infection, Rh incompatibility, or diabetes, but it is rarely screened for or properly diagnosed.<sup>6</sup> Injuries to the abdomen and genitals lead to higher rates of miscarriage, premature birth, and other complications of pregnancy than are seen in nonabused females. Sometimes social isolation by the abuser limits prenatal care. Domestic violence significantly influences interest in abortion services, and affects subsequent childrearing practices.

**Pediatrics.** Pediatricians know that it is important to screen for child abuse, but few recognize that it is important to screen for domestic violence, too.<sup>11</sup> Child abuse and domestic violence are closely linked. Child abuse is 15 times more likely to occur in families where domestic violence is present. One study reported that 87% of children knew that their mothers were being abused. Living in the presence of domestic violence is detrimental to children, leading to health effects that include: injuries while trying to protect their mothers; physical ailments related to stress such as headaches and abdominal pains; increased risk for substance abuse and suicide; and exacerbation of chronic illnesses, including peptic ulcers, rheumatoid arthritis, and asthma. The instability of the violent household and the conflict induced when people they love hurt or are hurt by another, may lead to excessive aggressiveness, anger, fearfulness, mistrust—and an increased risk of becoming a batterer or victim themselves. These children sometimes believe that they are the cause of the violence, resulting in feelings of guilt and shame and further inhibiting their ability to reveal their situation to an outsider.

**Geriatrics.** The abuse of women occurs at all stages of life. A survey of male and female senior citizens in Boston found that 2% were physically abused—and at equal rates by spouses or by children. Elder abuse may derive from the stresses of caring for frail, dependent people living at home or in nursing homes. Because of this, elder abuse prevention programs have concentrated on relieving caregivers' stress, but the problem of elder abuse is larger and more complex than just caregiver stress. By focusing on those who are dependent due to frailty or incompetence and who may need protection from their adult children or caregivers, physicians may be overlooking what may be a more prevalent problem—spouse abuse among older couples.

**Orthopedics.** Orthopedists routinely treat and follow-up patients with isolated bone or ligamentous injuries, but they should suspect abuse if a patient has multiple episodes of injuries to different sites, or keeps "reinjuring" a previously injured area. Of particular concern is the nondominant forearm, which may be raised in a defensive motion to ward off an attacker. It is an unfortunate commentary that frequent fractures trigger a search for occult malignancy (for "pathologic fractures") more often than they raise the suspicion of abuse. Skeletal surveys, routine in suspected child abuse, are infrequently made in suspected adult abuse victims.

**Gastroenterology.** Stress and other forms of emotional upset, including sexual and physical abuse, can lead to gastrointestinal symptoms. A study of women referred to the University of North Carolina gastroenterology clinic found that 46% reported a history of sexual or physical abuse.<sup>12</sup> Functional gastrointestinal disorders (irritable bowel syndrome, functional dyspepsia, constipation, or chronic abdominal pain) were nearly twice as common in those who had experienced sexual abuse as were structural disorders (acid-peptic disease, inflammatory bowel disease, or liver disease).<sup>12</sup> These illnesses prompt numerous office and ED visits and when refractory to therapy, result in extensive work-ups or surgical referrals that may never recognize the underlying stress-related causes.

**Psychiatry.** Psychiatrists see many patients with depression, substance abuse, somatization disorder, posttraumatic stress disorder, sleep and eating disorders, sexual dysfunction, obsessive-compulsive disorders, anxiety disorders, and suicidal ideation. All are common psychological responses to living with abuse. One study of hospitalized female psychiatric patients found that up to 64% had been physically abused as adults. Psychiatrists rarely ask their patients about physical or sexual assault despite decades of research on the psychological consequences on child abuse, domestic violence, and sexual abuse. Psychiatrists should be wary of prescribing tranquilizers or other medications that may increase a battered woman's already increased risk of suicide or substance dependency. And drugs that hamper alertness, may make victims of abuse more vulnerable to assault and less able to respond to or escape from a dangerous environment.



## Conclusions

Domestic violence has traditionally been viewed as a social problem, not a medical or public health issue, even though it has a devastating effect on the health of its victims. Physicians in all specialties should routinely ask their patients about domestic

violence, document their findings in the medical record, and provide appropriate referrals. Since domestic violence affects people from all backgrounds, health care providers should be alert to the effects of domestic violence in themselves, their staff, their colleagues and acquaintances, and their patients. □

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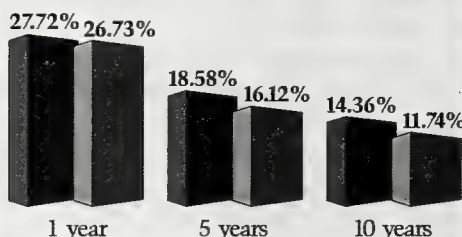
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# Domestic Violence

## A Clinician's Strategy

Nancy C. Chescheir, MD



Many barriers impede the way health care providers care for their patients. And barriers that prevent us from fully caring for the victims of domestic violence are legion. They include external barriers as well as self-imposed and largely unconscious impediments. The contributors and editors of this special issue of the *North Carolina Medical Journal* are committed to helping providers dismantle those obstacles.

There are several steps practitioners must take if we are to assume our legitimate role in caring for individual victims of domestic violence. It is critical that we take these steps since we are so often the point of contact for survivors of violence.

### Become Aware

Our first step is to become aware of the impact domestic violence has on the health of the nation. Statistics can be overwhelming, but they make us aware of the importance of this issue (see article on page 310). Donna Shalala, in her keynote address to the American Medical Association conference on *Family Violence: Health and Justice*, made the numbers easier to grasp: "In the United States, domestic violence is just about as common as giving birth, about four million instances per year."<sup>1</sup>

As in the study of any medical phenomenon, we can learn how victims of domestic violence present themselves. In some cases there are no overt clues to their situation; in some, domestic violence masquerades as other disorders; and in some, there is little or no doubt that the patient has been a victim of domestic brutality. I list here some of the clinical syndromes seen in battered women.

1. Chronic pain syndromes including pelvic pain, headaches, gastrointestinal disturbances, joint and muscle aches.
2. Central injury patterns, especially of the genitals, breast, and face.
3. Repetitive injuries, often with incongruous explanations.

4. Frequently missed medical appointments.
5. Failure to comply with medical advice.
6. Delayed enrollment for prenatal care.
7. Substance abuse.
8. Attempted suicide.
9. Depression.
10. A patient accompanied by an overattentive partner.

Physicians need to become aware of the community resources available to victims on referral. Battered women's shelters grew out of the feminist movement of the 1960s and 1970s, following the establishment of rape crisis centers. These shelters and programs (and many other helping agencies) antedate by decades the medical profession's recent interest in this topic. Most victims of domestic violence need referral to nonprofit or government agencies that function well outside of the usual network of "medical" consultation and referral. Physicians should know something about how they work. In a report entitled *Beyond Crisis: Developing Comprehensive Services for Battered Women in North Carolina. Needs Assessment for Battered Women and Domestic Violence Programs*<sup>2</sup> Mauney et al gave a thorough accounting of the 64 programs available in North Carolina as of February 1993. (Also see this issue's Health Watch, pages 345-8.) Most were private, not-for-profit organizations that typically offered phone lines for crisis needs, hospital advocacy or companionship, legal advocacy services, counseling services, support groups, community education, children's services, life skills education and training, and emergency housing. Maximum length of stay allowed in 50% of the shelters was three months or more.

Other agencies that can help victims include crisis telephone services, the National Domestic Violence Hot Line, Department of Social Services, Legal Advocacy groups, and religious groups. It is important to be cautious about giving women victims written information, as it is not uncommon for batterers to search their partners' belongings after an unaccompanied trip.

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## Become Inquisitive

Women rarely disclose a history of abuse or battering spontaneously. Women who present with appropriate signs and symptoms must be questioned directly. You could say "Sometimes we see injuries like yours after people have been arguing. Could that have happened to you?" or "I notice that you've missed a lot of scheduled appointments. Has someone been preventing you from coming to the doctor?" This type of question does two things: 1) it may get you the information you need to understand the patient's circumstances; 2) if she is a victim, you will have communicated to her that she is not alone and that you are available to her now or in the future to talk about intentional injury.

Unfortunately, it happens that most women victims don't have overt clinical signs and symptoms. That makes screening questions (as opposed to diagnostic questions) an appropriate tool. Recall that screening tests are used even when the patient is not considered to be at high risk for a disorder as long as the disorder has significant consequences, is relatively common, and something can be done if the patient is found to have it. Domestic violence is an excellent example of such a condition. Screening for domestic violence is straightforward and inexpensive. In taking the history from all patients, include a question about family violence. Some examples include:

- a. Have you been hit, kicked, or slapped in the past year?
- b. How do you and your partner resolve arguments?
- c. Are you safe at home?
- d. Has any one you know ever hurt you on purpose, or made you do something sexually you didn't want to do?

Some clinicians worry that including such questions as part of all history-taking will offend some patients. On the contrary, many women express gratitude that such questions have been asked. Even if they have not been battered, they may know someone who has.

## Become an Advocate

Many physicians avoid asking about domestic violence because they worry that it will ruin their schedule. Others claim that there is no useful intervention, thinking that the only successful outcome is having the patient leave the abusive situation. In that case, it is important to reframe our definition of "success" in the care of these women. L. E. Orloff<sup>3</sup> describes three levels of success when working with battered women:

- 1) The woman reveals her history to you, and she is prepared to leave her partner; you refer her for a protective order and to stay at a safe place; she leaves and is safe.
- 2) The woman reveals her history, but is not prepared to leave her partner. Nevertheless, she obtains a protective order following your referral to a domestic violence program. She is protected while she and her partner work through issues and he gets treatment. She is safe in the relationship.
- 3) The woman reveals her history, but is not prepared to leave

and returns to the batterer. She may not be safe at present, but she knows there is a trusted doctor or nurse who will be there for her in the future.

It may be challenging to reframe "success" in this way, but doing so validates many of the interventions that we can make for battered women. Various organizations, including the North Carolina Medical Society, print and distribute information about domestic violence. We can display these in our offices, especially in women's bathrooms. Various organizations sell lapel buttons that communicate your interest in domestic violence; we can wear one. And at all times, we can assure privacy in the intake areas of the office.

By communicating our interest and providing information to a patient, we let her know that she is not alone, that the violence is not her fault, that the batterer is responsible for his behavior. Frequently, victims blame the batterer's use of alcohol or drug for the abuse. I find it interesting to watch the eyes of the victim when I ask whether her partner ever hits a man when he is drunk. She becomes aware in that split second that even when intoxicated, the partner chooses to hit her.

Patient advocacy includes providing information that will allow the patient to develop an "exit plan." Table 1, below, lists the components of an exit plan. North Carolina is largely rural and exit plans should take into account the geographic isolation of many women.

Victims of domestic violence often feel helpless and powerless. According to Schechter,<sup>4</sup> the batterer holds power over the victim, using coercion, terror, violence or the threat of violence to get his way. Patient advocacy means giving the patient power over something. It is not ours to decide that a woman should leave a relationship. Buel<sup>5</sup> said in a video produced by the American College of Obstetricians and Gynecologists that battered women want four things from their health care providers: 1) Inform her that you care about her safety and the safety of her children.

**Table 1. Components of an exit plan<sup>7</sup>**

1. Pack a bag and place in a secure place or with a friend or neighbor. Include:
  - a change of clothes for victim and her children
  - toiletries,
  - necessary medications,
  - an extra set of house and car keys.
2. Cash, checkbook, savings account passbook.
3. Identification papers such as birth certificates (including children's), Social Security cards, voter registration card, utility bills, a driver's license, and the children's immunization records (for school enrollment).
4. If available, financial papers, such as mortgage, rent receipts, automobile title.
5. Something of special interest to the child, such as a book or toy.
6. A plan of exactly where to go, regardless of the time of day or night.



- 2) Inform her that the violence only gets worse.
  - 3) Inform her that the violence is not her fault.
  - 4) Let her know that you will be available when she needs you.
- Information is power. By giving her information, you return a bit of power to the woman.

## Become Active

A number of organizations are dedicated to combating domestic violence. Membership in these organizations is usually inexpensive, but the strength of numbers gives voice and dollars to their efforts on behalf of victims of violence. Table 2, at right, lists several such organizations, as does Health Watch (page 345). Local domestic violence shelters are usually underfunded. Financial donations, as well as donations of time and medical care for clients, are important. You can help.

State and the federal governments often have family violence legislation in their agenda. Candidates' stump speeches often refer to this issue. We can hold our representatives accountable to follow through on their commitments. And we can regularly communicate our thoughts about relevant legislation to lawmakers.

When we have the opportunity to do so, we need to include aspects of domestic violence in presentations to local civic groups; to continuing medical education courses; to medical, nursing, other helping profession students. Our involvement will make a difference.

## Summary

As physicians we should continue to do those things we do well. But we need to focus our efforts in novel ways in order to address the pervasive and insidious problem of domestic violence.

- ✓ We need to become knowledgeable about the individual and public health consequences of domestic violence and the community resources available for patients.
- ✓ We need to be inquisitive in our practices, learning to identify women who are victims.
- ✓ We need to become advocates in our own practices, communicating to all patients our interest in domestic violence and our willingness to help victims.
- ✓ We need to become active in our communities in efforts to

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**Table 2. Resources available to health care providers to assist in caring for survivors of domestic abuse**

◆ **Domestic Violence: A Directory of Protocols for Health Care Providers**

Newton, MA: Childrens' Safety Network,  
Education Development Center, Inc., 1991  
Copies available from:  
Department of Mental Health  
American Medical Association  
515 N. State St.  
Chicago, IL 60610

◆ **Protocol of Care for the Battered Woman** (1987)

March of Dimes Birth Defects Foundation  
Professional Education Department  
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◆ **Beyond Crisis: Developing Comprehensive Services for Battered Women in NC** (1993)

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◆ **Domestic Violence: More Prevalent Than You Think** (videotape)

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eliminate domestic violence and to improve services to victims. □

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# Should Physicians Be Required to Report Domestic Violence?



David H. Gremillion, MD, FACP

As physicians become more involved in identifying and referring cases of domestic violence they inevitably face the professional<sup>1</sup> and ethical dilemmas<sup>2,3</sup> posed by reporting requirements. These requirements may be well-intentioned and directed at improving victim safety and detecting crime, but improper reporting can escalate violence, erode the trust between patient and physician and create liability for the physician. Recently the North Carolina Medical Society and the American Medical Association, seeking to preserve patient confidentiality, have opposed mandatory reporting of domestic violence.<sup>4</sup> New and efficient ways to detect domestic violence mean that we will identify more cases in the future.<sup>5</sup> Since we want to be perceived as a resource by our patients, we must familiarize ourselves with current reporting requirements.

In this article I examine the theoretical basis for and potential pitfalls of reporting domestic violence. I review current North Carolina reporting requirements and the implications of such reports and compare them to laws in other states.

## Presumptive Rationale for Mandatory Reporting

Mandatory reporting has been justified on a number of grounds (Table 1). Protection of the victim and other household members is the most commonly cited rationale. It is viewed by some as a way to bring cases to early attention, before there is dangerous escalation of violence.

Improved data collection is another reason. Statistics on domestic violence are deeply flawed and there are great disparities between criminal data and population-based surveys. Mandatory reports might provide uniform and consistent data, allowing identification of needs and justifying funding. Better information might lead to better programs, better education,

and better system responsiveness.

Mandatory reporting might help make perpetrators accountable for their actions by bypassing victims' reluctance to report and proceed with prosecution. Documentation of domestic violence is often lacking in medical records, even in identified cases. Mandatory reports could, in theory, improve such documentation and provide valuable information for prosecution or other action at a later date. A carefully worded medical progress note could serve the purpose while preserving patient confidentiality and trust in the physician.

Laws regulating the reporting of spouse abuse are often modeled on laws for child and elder abuse. Society has a legitimate interest in assisting the very young and the very old, and laws protecting them (including required reporting by physicians) exist in most states. There are differences, however, between reporting of spouse abuse and reporting of child and elder abuse. Children and the vulnerable elderly may be unable to advocate for themselves because of immaturity or disability; spouses are often capable of protecting themselves and may have access to supportive organizations and networks. Part of the healing process for an autonomously functioning spouse in an abusive situation is to decide how and when to make a life change. Being in charge of that difficult decision may be the only control a victim has in her life; removing that control may provoke a crisis. Paternalism may be proper in child abuse reporting, but for adults this is merely another and perhaps greater imposition of control by another.

**Table 1. Rationales for mandatory domestic violence reporting**

Protecting victims
Collecting statistical data
Making perpetrators accountable
Improving system responsiveness
Documenting incidents

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## Potential Problems with Mandatory Reporting of Domestic Violence

Improper reporting may put victims in danger if the perpetrator seeks to reestablish control through increased violence (Table 2). Retaliatory violence is often threatened and prosecution may further increase violence because the perpetrator blames the victim for disclosing the abuse.

From a practitioner's perspective one of the strongest disadvantages of mandatory reporting is that it may create obstacles to health care. Patients may fear that talking to the doctor will initiate a cascade of judicial sanctions that are out of their control and for which they are poorly prepared. To be effective, sanctions must be timed to correspond with victims' family, financial, and safety preparations. Furthermore, abusers may forbid victims from seeking health care if contact risks mandatory reporting and revelation of the abuse (clinic staff should alert the physician to the possibility of domestic violence when a male voice cancels a female appointment).

There is a concern that mandatory reporting may generate misleading data because of physicians' negative or inadequate adherence to the requirements. This was the case for instance in Connecticut, which allowed mandatory reporting statutes to lapse. Low compliance with mandatory reporting has been documented for child and elder abuse, possibly because of practitioner perceptions that such reports create excessive time and administrative burdens. Poor compliance by physicians and dentists<sup>6</sup> may also be related to concern that reports may be improperly handled, to privacy beliefs, to lack of awareness of reporting requirements, or to failure to consider domestic violence as a cause of patients' complaints.<sup>7</sup>

Practitioners have been willing to report suspected cases of domestic violence occurring in minorities and indigents but reluctant to report others. The misleading data there-

**Table 2. Potential negative consequences of mandatory reporting**

Escalation of violence  
Retaliation on victim  
Deterred clinical care  
Data distortion  
Revictimization

by generated perpetuate the stereotype that domestic violence is a problem of certain marginal populations. The AMA recently opposed mandatory reporting of domestic violence, instead endorsing state efforts to implement anonymous public health reporting systems for surveillance.

Inability to respond to a flood of cases detected by mandatory reporting could overwhelm and thereby discredit current support systems. Shelters already turn away many victims because they have no space. The judicial system often has long delays in addressing issues of domestic violence. In the long term, recognizing such unresponsiveness may generate change, but in the short term it would further erode confidence in health care and governmental support.

Some criticisms of mandatory reporting of child and elder abuse also apply to spouse abuse.<sup>8,9</sup> Reporting may raise false hopes when, in fact, most agencies are underfunded and poorly equipped to deal with the large numbers of cases that emerge from mandatory reporting. In addition, elder abuse reporting strains the physician-patient relationship and deters seeking care because patients want to preserve their independence and avoid institutionalization.<sup>10</sup>

## Comparison of Reporting Requirements

There is no uniform requirement for reporting in the United States. Five states require physicians to report domestic violence, and five have no statutes relating to reporting of domestic violence. Conditional requirements vary even in those states with laws (Table 3) and may be vague about what to report, to whom, and by whom. Furthermore, existing laws often do not specify penalties for noncompliance or provide protection from liability for the physicians who report. Finally, there is little

**Table 3. Comparison of state statutes on reporting of domestic violence**

**A. States with no reporting statutes:**

AL, LA, SC, WA, WY

**B. States with mandatory reporting statutes:**

CA, RI, KY, NM, NH

**C. States with conditional reporting statutes:**

<u>Qualifying condition</u>	<u>Number of states</u>	<u>States specifying listed qualifier</u>
Firearm injury	40	AK,AZ,AR,CA,CO,CT,DE,DC,FL,HI,ID,IL,IN,IA,KS,ME,MD,MA,MI,MN,MS,MO,MT,NV,NH,NJ,NY,NC,ND,OH,OR,PA,RI,SD,TN,TX,UT,VT,VA,WV,WI
Illegal act	18	AZ,CA,CO,DC,ID,IL,IA,MA,MN,NE,NH,NC,ND,OH,OK,PA,UT,WV,WI
Act of violence	7	FL,HI,MI,NE,NC,OH,TN
Intentional injury	8	AK,AR,CO,GA,HI,ID,NV,OR
Gravity of injury	9	AK,AZ,HI,IN,IA,KS,NY,NC,OH



evidence that patient well-being is enhanced in states having rigid reporting requirements.

The North Carolina reporting requirements are covered in General Statutes 90-21.20 (Appendix, at right), and for child abuse in GS7A-543 (Duty to report child abuse, neglect, dependence, or death due to maltreatment). NC physicians are required to report all "wounds, injuries, and illnesses" caused by firearms, knives, or sharp instrument, or due to criminal acts of violence. The growing trend to identify domestic violence as a criminal act makes these laws applicable to domestic violence cases. NC physicians are guaranteed immunity from any liability, civil or criminal, when they make a report in good faith.

Today NC physicians are responding to their abused patient's needs with greater awareness and sensitivity than ever before. In part, their response is effective insofar as it preserves patients' confidentiality and autonomy. Reporting is clearly justified in certain circumstances, but physicians should always be cautious about revealing sensitive information without the patient's permission. When weighing the pros and cons of reporting, physicians must respect patients' wishes and include them in the decision to the extent allowed by law. Familiarity with how local authorities respond to reports and knowledge of local resource availability will help physicians decide how and when to report.

The current NC statute allows for judgment and discretion in reporting. That helps preserve the patient-physician relationship. We must remain vigilant in preserving this flexibility by supporting NC Medical Society and AMA efforts. □

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## Appendix.

### G.S. 90-21.20 Reporting by physicians and hospitals of wounds, injuries, and illnesses

(a) Such cases of wounds, injuries or illnesses as are enumerated in subsection (b) shall be reported as soon as it becomes practicable before, during or after completion of treatment of a person suffering such wounds, injuries, or illnesses. If such case is treated in a hospital, sanitarium or other medical institution or facility, such report shall be made by the Director, Administrator, or other person designated by the Director or Administrator, or if such case is treated elsewhere, such report shall be made by the physician or surgeon treating the case, to the chief of police or the police authorities of the city or town of this State in which the hospital or other institution, or place of treatment is located. If such hospital or other institution or place of treatment is located outside the corporate limits of a city or town, then the report shall be made by the proper person in the manner set forth above to the sheriff of the respective county or to one of his deputies.

(b) Cases of wounds, injuries or illnesses which shall be reported by physicians, and hospitals include every case of a bullet wound, gunshot wound, powder burn or any other injury arising from or caused by, or appearing to arise from or be caused by, the discharge of a gun or firearm, every case of illness apparently caused by poisoning, every case of a wound or injury caused, or apparently caused, by a knife or sharp or pointed instrument if it appears to the physician or surgeon treating the case that a criminal act was involved, and every case of a wound, injury or illness in which there is grave bodily harm or grave illness if it appears to the physician or surgeon treating the case that the wound, injury or illness resulted from a criminal act of violence.

(c) Each report made pursuant to subsections (a) and (b) above shall state the name of the wounded, ill or injured person, if known, and the age, sex, race, residence or present location, if known, and the character and extent of his injuries.

(d) Any hospital, sanitarium, or other like institution or Director, Administrator, or other designated person, or physician or surgeon participating in good faith in the making of a report pursuant to this section shall have immunity from any liability, civil or criminal, that might otherwise be incurred or imposed as the result of the making of such report. (1971, c. 4; 1977, c. 31; c. 843, s.2.)



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# Domestic Violence

## Working With the Spouse Abuser

Alan Brown, MSW, CCSW



Fred received the community citizenship award just before he was ordered by the court to attend a batterer's treatment program. As a volunteer firefighter, Fred had single-handedly raised thousands of dollars to help a local family who recently lost everything in a house fire. His picture in the paper confirmed the general perception of Fred as dedicated community servant—a public image that made it very difficult for Fred's wife to file assault charges against him for years of emotional and physical abuse.

### What is Spouse Abuse?

No matter how spouse abuse is defined, the definition must illuminate the underlying issue of power and control. The use of violence should be viewed as a deliberate attempt to control the thoughts, feelings, and behavior of the victim.<sup>1</sup> Abuse is not merely an "unhealthy way" of venting angry feelings; rather it is an intentional behavior for which the abuser must be held accountable. The focus should be on the abuser's use of force to impose control on another person, not mere loss of control over "normal" impulses. An accurate formulation of Fred's behavior would state "I lost control of my wife—so I used violence to regain control."

Physical injury, even death, is too often the result of domestic violence, but power and control are played out in a variety of other coercive forms: verbal abuse and threats, intimidating gestures, withholding of money (economic abuse), manipulation of children, and isolation of the victim from outside contact. All controlling behaviors, not just physical violence, must be effectively addressed if we are to lessen the problem of spouse abuse. Eliminating violence would be a significant accomplishment, but no one should see that as a

"cure" or think that the former batterer will no longer be controlling or abusive.

Let me give you some examples: a 65-year-old man who routinely removed the spark plug wires from his wife's car so that she could not visit friends; an ex-Marine who cleaned his guns when his girlfriend "talked back" to him; or Pete who threw gasoline on his wife and then began "playing" with a cigarette lighter. All are just as abusive and controlling as Fred who beat his wife several times a year. The methods are different but the underlying issue is the same: control.

### Who Are Spouse Abusers?

Spouse abusers are representative of the population as a whole. They may come from any socioeconomic class, any race, any religion. Men are usually identified as the abusers and women as the victims, but there are cases where the reverse is true.

Fred's pleasant, even charming, public image is a common characteristic of spouse abusers. No single distinct profile defines abusers, but commonly seen characteristics include low self-esteem, an inability to identify and express feelings, a likelihood of having grown up in a violent/abusive home, difficulty with assertiveness, personality disorders, and substance abuse. Like many abusers, Fred successfully minimized, denied, and blamed others for his abusive behavior. "It's her fault. She made me mad." "I didn't mean to. I just lost control." "It was just a push, I wasn't violent." Statements like these are frequently heard in treatment programs for abusers.

### Can Abusers Be Helped?

Anger does not cause violence. Violence is a choice made by angry people. Teaching abusers how to manage anger can be helpful, but learning management skills is not the whole solution. Attitudes and beliefs must be changed as well. Above all else, the abuser must hear one clear, consistent message time

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and time again: "You—and no one else—are responsible for your behavior. One hundred percent of the time."

Treatments for batterers range from individual therapy to support groups, but one widely used format is the psychoeducational group. Such groups offer feedback from peers, provide much needed socialization skills, and eliminate the fear that "I'm the only one with this problem." Groups are usually gender-specific, but have male and female co-leaders to allow role-modeling and to ensure that both men's and women's perspectives are presented. The psychoeducational format confronts misbeliefs about women, men, and personal accountability, while teaching basic skills in communication and stress/anger management.

Effective treatment includes firm, consistent rules. A major challenge is to hold abusers accountable for their actions. One way to do this is to enforce consistently the treatment program rules. The concern is not so much what the rules are, as it is that existing rules are enforced or not.

By far the most controversial form of treatment for spouse abuse is couple's counseling. This immediately defines abuse as a relationship issue, and gives both partners some degree of responsibility. Many feel that this is equivalent to "blaming the victim"<sup>2</sup> but others suggest that it presents a realistic approach to strengthening the relationship while addressing the violence.<sup>3</sup> The most important issue of concern relates to the consequences that couple's counseling may create for the abuse victim. Would Fred's wife feel safe disclosing information in front of him? What might happen when the couple returns home after the session? The victim may be at risk of more violence because of what was said in a session, or because of resentment that the abuser was ordered to attend the sessions in the first place. Couples treatment should be offered only after all aspects and consequences have been thought out, and the victim is confident that there is little or no risk of further violence.

Even more important than curriculum, group leaders, rules or method of intervention, is the relationship of a program to the courts and legal system, and the program's ability to form networks within the community. The vast majority of persons who receive help for abusive and violent behaviors do so under court orders. Very few seek help voluntarily. The courts are thus not only a primary referral source, but they provide the treatment program with authority—authority to refer participants back to court for noncompliance (another way of holding the abuser accountable for his actions). Domestic violence cannot be viewed as just a family matter; it is a community issue that must be met with interagency-community response.<sup>1</sup> And a formal domestic violence program is just one part of the "treatment" team. Churches, schools, courts, civic groups—the entire community must be active participants.

## Summary

Reported "success rates" for abuser treatment programs vary greatly, from as low as 5%<sup>4</sup> to as high as 67%.<sup>5</sup> Regardless of

statistics, intervention cannot be overlooked if domestic violence is to be addressed. The primary concern must always be safety for the victim, but the cycle of violence will not stop without treatment interventions for the abuser. Effective screening and referral of potential abusers are crucial to breaking the cycle.

Working under the provisions of NC General Statute 50B-3(a), the North Carolina Council for Women works with abuser treatment programs in order to establish eligibility requirements for abusers. These programs, listed in Health Watch (pages 345-8), provide individual and group counseling for a set fee, which the abuser pays. For more information call Joyce W. Allen, NC Council For Women, 919/733-2455. □

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# A Survivor's Story

## When Abuse is More Than Skin Deep



**Editor's note:** We publish this story in hopes of elucidating the health care professional's perspective of domestic abuse. The author remains anonymous, despite her willingness to divulge her name. Her ex-husband's name is a pseudonym and details of his personal life changed. The views expressed are the author's own and do not reflect opinions or views of the *Journal* or the North Carolina Medical Society.

I grew up in a dysfunctional family. My grandfather's boyhood was punctuated by physical and emotional abuse; as an adult he passed along that legacy. I never heard anyone say that he physically assaulted my grandmother, but his constant womanizing and disrespect seriously affected her self-esteem. He was a physically and emotionally abusive father to his children; he once threatened to kill my mother if she moved out of the house. To all outward appearances, my family was normal. My grandfather had an excellent job and my mother was a teacher.

My parents divorced when I was two. I did not see my father, a prominent physician, often. He wrote letters telling me how much he loved me, how proud he was of me. But he never showed me that love, that pride. He was never present at any occasion that was important to me. It took me years to realize that I couldn't win his love; in the meantime I kept trying.

From my family I learned that appearances were everything; that one did not talk about what happened behind closed doors; that men can do what they want; that women are powerless to do anything except suffer in silence. From my father I learned that words are supposed to mean more than actions and that only mothers have a moral obligation to take care of their children.

I felt different from my close friends because nearly all of them were raised in two-parent families. I always felt incomplete; part of my life, missing. I felt ashamed that my own father had chosen to not include me in his life. I knew that my mother felt isolated and lonely because she was often the only divorced woman in her group. I made up my mind to have a good marriage and family life—and then I met John (a pseudonym).

### A "New" Life

John was different from any man I had ever met. He was worldly, sophisticated, and traveled extensively. He told me that he respected me too much to hurt me and that he would not "pressure me to do anything I wasn't ready for." After we married, he told me that he didn't want to "abuse the privilege"

**Guest Editor's note:** Physicians are accustomed to thinking of domestic violence as physical injury or illness. Few of us recognize the acute and chronic effects of emotional and economic abuse on an individual by "someone who loves them." Abuse affects patients' ability to objectively assess their situation, or ask for the help to break the cycle of violence.

This is a first-person account of one such victim; her abuse was never visible to the people she met every day, but her injuries were as real and debilitating as any broken bone or chronic illness. Understanding the dynamics of emotional abuse can help health care providers' ability to diagnose and treat these patients before escalation to physical violence occurs.

—Peggy E. Goodman, MD, FACEP,  
Chair, Domestic Violence Committee,  
North Carolina Medical Society

of sexual relations. It did not take me long to realize that there was a problem, but never once did I think that the problem was his. I thought it was something wrong with me that caused my new husband to stay away.

I found out John was gay five years after our wedding (and after the birth of our first child). He admitted to "making mistakes," but said they wouldn't happen again. Five years later, John began a long-lasting affair with a man who wanted John to leave his family. John refused, and a nightmare took shape. For three months I thought I was going crazy. When I answered the telephone, the caller would hang up; if John answered, there would be a conversation. The doorbell would ring, and no one would be there. On Christmas, the telephone rang all day. Many times I asked John what was going on. He said I was getting "paranoid." Two weeks later, I was startled by a loud crash of shattering glass. John ran downstairs immediately. I grabbed both children and followed him. At the foot of the stairs lay a molotov cocktail. John picked it up and doused the flames. He called the police and when they arrived, he took them outside. The officers questioned me, but I could not help

them. Later John told me that the police had arrested a suspect who had gone to trial and had been placed in jail for a long time.

I have few memories of the next 18 years. I couldn't remember anything. I couldn't concentrate. I became anxious when the telephone or doorbell rang. I dreaded the Christmas season, because it brought back all those memories. I was never allowed to talk about my fears or my terror. I had to keep quiet.

John's emotional manipulation was ongoing, and he was also financially controlling. Early on, I closed our joint checking account because it was constantly overdrawn. One day I asked for money for formula for our first child and he told me that we didn't have any money. Shortly afterward, I found a new leather jacket in his closet. When I asked him about it, he burst into laughter and said that it had been there a while and that his coworkers were taking bets to see how long it would take for me to find it. I bristled with humiliation and embarrassment.

I tried to get help. I went to clergymen and therapists. None were helpful. I felt powerless, as though I had nowhere to turn. When I would threaten to tell someone about John's behavior, he would laugh at me. He said that no one would believe me. He told me that society was not as narrow-minded as I; that if I said anything, people would just laugh.

I first tried to leave John in 1973. I took my daughter to my mother's home, and told her that I had left. I did not tell her the reasons why, but I did tell her that it was serious. My mother said that my place was with my husband; that I couldn't stay with her; that I needed to go back home. She said that she would not get involved. Feeling that I had no place to turn, I went back.

I stayed with John until 1984. By then, I had completed a doctorate in educational psychology, and had earned a master's degree in community public health. I felt ready to leave, ready to be responsible financially for the children. I knew that I couldn't count on John to help me. I taught at a university for four years, but never bought a house or did anything that really suggested a sense of permanence. I know now that I was afraid that the man who threw the firebomb was after me. Deep down I felt that if he could kill me he could have John to himself. I was always ready to run away.

I divorced John in 1988. By 1989 one child had been diagnosed with a conduct disorder, one had been diagnosed with attention deficit disorder, and my third had been falsely diagnosed with vitiligo. I felt burdened and overwhelmed; I had to get help, so I went back to John. Within a week I knew it was a mistake. I felt trapped again. I had given up my job; the children had just started at new schools. I couldn't uproot them.

It took three more years to get the courage to leave again. This time I knew that I had tried everything to make the relationship work. My children and I left for good in August 1992. That Christmas, John decided that he wanted to see the boys. My sons asked him about the firebombing and he told them that it had been a robbery. I knew that this was not true, so I set out to learn the truth. After several months I got a copy of the police report, and reading it, I burst into tears; John was listed as the victim and the children and I were named as witnesses. The offense was aggravated arson. The police de-

scribed the firebombing as "some sort of domestic trouble between John and an ex-friend." No charges were filed. When I tried to obtain a copy of a restraining order mentioned in the police report, I was told that when the charges were dropped, the restraining order was lifted. I was devastated to learn that the man that I had vowed before God to love and honor had put my life and the lives of his children in danger to protect his secret.

## Starting to Heal the Wounds...

Reading the police report was the catalyst that began my healing. In 1994, I went to my first battered women's group and also started individual therapy. I was diagnosed with posttraumatic stress disorder (PTSD). My recovery has been very difficult because I have had to relive my marriage. When I first began therapy I would awaken in the middle of the night, frightened to death. Many times I would dream that somehow John had broken into my home and was laughing at me. At other times I dreamt that someone was knocking at the door. I would open it to find John standing there, the size of a giant.

After seeing the police report, certain PTSD symptoms became exaggerated. I kept myself busy, because idle time was a window through which flashbacks came. The biggest reactions occurred at the anniversary dates of the firebombing. I remember walking into a Wal-Mart one evening in late October. Before I knew it I found myself standing in front of a Christmas display. I couldn't move for a few minutes—I just stood quietly staring at the display, tears flowing down my face. I fled the store, and took several minutes to pull myself together enough to drive home. From that day on I planned shopping trips carefully to avoid Christmas displays. Two years ago, I didn't celebrate Christmas at all. I knew this was disappointing to my youngest child, but I was absolutely unable to cope with the panic I constantly felt.

During this very difficult time, I lost my college teaching job. I was not able to keep my health insurance. I felt I had to be healthy until my son graduated from high school in 1998, because I knew that if I became ill or if I died, John would force him to relocate. I prayed and then willed my body to stay well, but it didn't work.

## ...and Opening New Ones

In September 1996, I was diagnosed with Stage III breast cancer. The hardest thing I have ever had to do was to tell my son that I had cancer and would have to have surgery. I had no job, no insurance. I became a client of Social Services. Medicaid paid for my treatments. John has never paid more than \$300 a month in child support. Even now we rely on Medicaid, food stamps, and my mother's generosity to help us get through until I can find a job. It is a humiliating and humbling experience.

I became estranged from my daughter and lost contact with my older son. They were both angry because I refused to



pretend that there was no problem. It didn't take me long to hear John's words and beliefs coming from my daughter's mouth. Both she and her brother have told me that they would probably feel differently if I had been physically abused, but since it was "just emotional," I should have "just left."

In October 1996, John called me for the first time in years. He wanted to see his children. I told him that I was getting ready for my first chemotherapy treatment, which would involve a five-hour drip of a particularly aggressive drug. I asked him not to come. I didn't need any emotional problems just then. After chemotherapy, the side effects of the drug made my knees unbearably painful. Walking was torture, and I was very sick. I felt awful, and was up most of that night. John came that weekend, although I didn't find out about it until a week later. My daughter allowed him to come to my home to pick her up. When I questioned my children about their actions, my older son told me that he wanted to see his father and that I should "get over it." For my own sake, I cannot have my two older children in my life right now. They seem to come with a price—John.

I worry about my youngest son. Because John has not been around him much, he has not been able to influence him as much as he has the other children. My son has missed the support and love of a father. He has adopted the fathers of several of his buddies, and the other day he mentioned that one of these fathers had done more for him than his own father. I had an opportunity to observe him recently interacting with a male relative; I saw in his big brown eyes the longing for approval and attention. Silent tears streamed down my face. I am so hurt that he has to go through this. I also hurt for my other children. I fear what lies ahead for them when they finally have to deal with the truth. I love my children and I would do anything I could to help them. But I will not ignore what happened to me and to them. They have been victimized as much as I.

My fear of John is not nearly as strong as it was, but since it is difficult to keep him out of my life completely, he can continue to do what he wants. He still thinks that he has control over me. When I started speaking out about his abuse, he wrote a letter chastising my actions. Quite by accident I learned that when we were separated and talking about divorce, he taped our conversations. I found an unlabeled tape just last year on which John and I are having an argument—he insisting that the argument be taped, I refusing. I was horrified that he had done so anyway, and now I wonder what other tapes he might have.

As a part of my healing, I attended a support group and meetings of P-FLAG (Parents and Friends of Lesbians and Gays). It didn't take me long to realize that John's behavior had nothing to do with being bisexual. I have recovered enough to know that most men are not like John. I know that most men are good and decent; I still hold out hope of finding someone who will love and respect me.

John works at a major trauma center in another state. He has been prominently featured in advertising touting the institution's caring approach to patients. He is often called upon for advice on how to handle patients. It bothers me that he could actually be responsible for the care of battered women.

## The Legacy of Emotional Abuse

Physical abuse leaves visible wounds. Emotional abuse scars the heart. The cycles of violence that lead to physical abuse usually include a period of calm before the next beating occurs. Emotional abuse never lets up. It is ongoing, and the result is constant anxiety and stress. Life feels chaotic and out of control almost all of the time.

I haven't shared much of my story with my doctors. I was afraid that they weren't trained to deal with this subject, and my story is complicated. How could someone unfamiliar with domestic violence understand how an incident from 20 years ago still affects me today? I have shared part of my story with my general physician, my oncologist, and my radiation oncologist. They have been very supportive, but I rely on my therapist to guide me through my emotional recovery. I was ashamed of my experiences and feelings for so long, that if a doctor had asked me outright about abuse, I would have said no. Given my history of being hurt by men, I don't know if I could have trusted a male physician enough to confide in him.

I want health care professionals to know that abuse is more than just beatings, shootings, stabbings. I want doctors to be aware of agencies that assist victims, so they can appropriately refer patients they believe could benefit from these services.

On one occasion, before I left John, I sought medical help for heavy vaginal bleeding. My doctor put me through a series of tests and biopsies, all of which came back negative. My doctor told me that I needed to deal with whatever else was bothering me because I was "killing myself with stress," but he made no effort to pursue the subject beyond treating my physical ailment. If doctors think stress might be causing physical and psychological problems, they might ask their patients whether they are afraid of, or are being hurt by anyone. Gently probing questions elicit more response from suspected victims. Remember, I was afraid that much of what happened to me was my fault; I was afraid my doctor would confirm those feelings by telling me I was making too much of a fuss.

## Concluding Thoughts

Although my past experiences with John left me feeling powerless, people have commented on my strength and courage in facing cancer. Not many people know of the years I spent praying to die to escape my pain. I was not suicidal (perhaps I was a coward); I just didn't want to wake up the next morning. Cancer is a known enemy. Doctors can tell you how to fight it. Much is known about cancer and there is an arsenal of weapons to fight it. I respect the power of cancer, and I am fighting for all I am worth to survive. But how can one fight an enemy who stands before God and vows to love you? Could I really have been prepared for John? Could a different family background have let me see and avoid what lay in store? I don't know, but I do know that now I am on the road to healing. I have hope. I feel strong. □

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Wednesday, June 18, 1997

Page 1 of 1

Notes

SUMMARY  
Grade 2 talofibular ankle sprain - AUTHOR: Robert A. Christopher

NOTES: Echo Note Subjective Note Objective Note Assessment Note Plan Trendancy

1. SUBJECTIVE  
2. This patient presents today complaining of pain and swelling over the lateral left ankle, which has been present for the past few days  
3. These symptoms arose after a fall on an inverted left ankle. The patient noted immediate pain and swelling following this injury  
4. Ambulation markedly aggravates the pain and swelling. Over-the-counter analgesics have been only minimally helpful in alleviating these symptoms  
5. These symptoms  
6.  
7. OBJECTIVE  
8. Vital Signs: Systolic -120, Diastolic -80 Pulse -70, Resps -15, Temp -98.5, Weight -135, Height 65"  
9. Chest: The chest wall is not tender. It moves symmetrically with respiration. There are no chest wall masses or cutaneous lesions. The lungs are clear to auscultation and percussion. There are no rales, wheezes, or rhonchi detected. The heart sounds are regular. There are no gallops, murmurs, clicks, or rubs. The first and second heart sounds are normal. The PMI is not displaced or abnormally sustained, and there are no thrills.  
10. Abdomen: A four quadrant examination of the abdomen reveals no tenderness, masses, organomegaly, or cutaneous lesions. The bowel sounds are normal. There is no guarding, and no costovertebral angle tenderness. There is no distension or tenderness in the suprapubic region. There are no bruits noted.  
11. Musculoskeletal: Marked tenderness and soft tissue swelling is present over the lateral left ankle. The tenderness is significantly increased with inversion stress of the lateral ankle joint, but no significant laxity of this joint is noted on this examination. The remainder of the musculoskeletal exam is normal. Point bony tenderness over the ankle bones is not present  
12.  
13. ASSESSMENT  
14. 1. Grade 2 talofibular ankle sprain - left (ICD9-845.09)  
15.  
16. PLAN: (CPT4-99214)  
17. 2. Ice to be applied intermittently over the next 48 hours  
18. 3. Non-weight bearing with use of crutches for the next week, then begin range of motion and strengthening exercises  
19. 4. Ultram 50mg 1-2 tabs po qid prn pain #40. 1 refill. The potential for GI side effects was discussed with the patient  
20. 5. Return to clinic 2-3 weeks for reevaluation  
21.  
22.  
23.

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# OFFICIAL CALL

## House of Delegates

### ~Meetings Scheduled~

#### Notice to:

Delegates, Alternate Delegates, Officials of the North Carolina Medical Society,  
Component Medical Societies and Specialty Societies

#### SESSION OF THE HOUSE OF DELEGATES

will convene at the  
Pinehurst Resort and Country Club, Pinehurst, NC, at the following times:

***Friday, November 14, 1997 - 8:30 am - opening session***

***Sunday, November 16, 1997 - 9:00 am - second session***

A member of the Credentials Committee will be present at the Meeting Registration Desk on Thursday, November 13, 1997, from 3-5 pm, and Friday, November 14, 1997, from 8-9 am, to certify Delegates. Delegates must bring their Credential Cards for presentation at the Registration Desk. Delegates must wear their badges to be seated in the House of Delegates.

#### REFERENCE COMMITTEE HEARINGS

Reference Committee hearings are scheduled to begin:

***Friday, November 14, 1997 - 2:00 pm***

*Carolyn R. Ferree, MD, President*

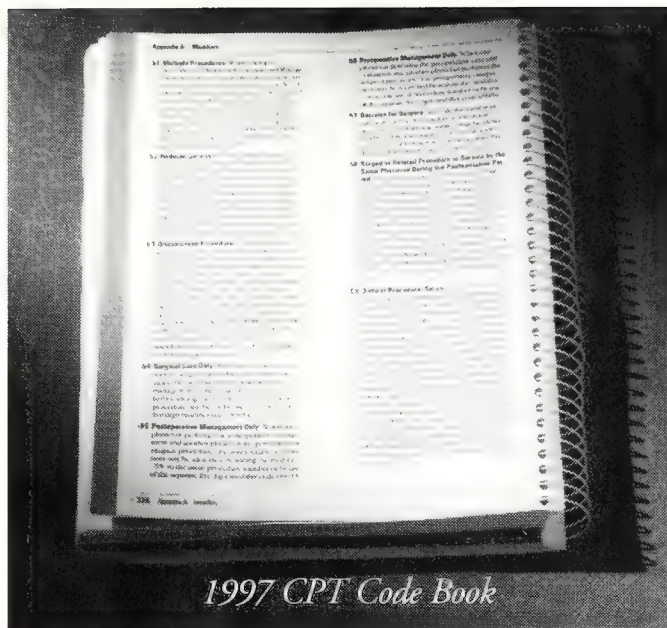
*Charles L. Garrett, Jr., MD, President Elect*

*John A. Fagg, MD, Speaker*

*Jeffrey W. Runge, MD, Vice Speaker*

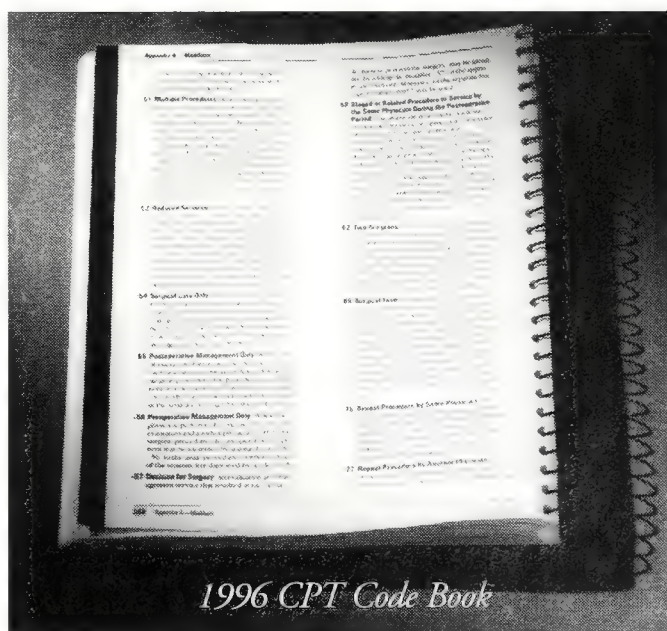
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# The Compromise of Compassionate Care

## North Carolina Poet's Essay Illuminates Doctors' Role in Caring for the Terminally Ill

Alan Shapiro

**Editor's note:** Mr. Shapiro is Professor, Department of English, UNC-Chapel Hill, where he teaches Creative Writing, Modern English, and American Poetry. The following article, from a chapter called "The Doctor," is excerpted, with permission, from his new book, *Vigil*, which will be published this fall by University of Chicago Press.

Mr. Shapiro has authored seven other books of literature and poetry and has won several national awards, including the 1996 Pushcart Prize, the Lila Wallace-Reader's Digest Writers Award, and two fellowships in poetry from the National Endowment for the Arts.

The piece concludes with commentaries we solicited from eight North Carolina physicians. Their thoughts further illuminate the doctor-patient relationship against the backdrop of Mr. Shapiro's poignant tale. We encourage *Journal* readers to submit additional commentary as letters to the editor.

In his prison diary, *Dialogue with Death*, Arthur Koestler describes how his physical, life-and-death dependence on his warders grew into a psychological and spiritual dependence over the course of his imprisonment, such that he came to think of them as "naturally" superior beings, and of himself as "naturally" inferior:

I did not know how quickly one comes to regard a privileged stratum of men as beings of a higher biological species and to take their privileges for granted as though they were natural endowments. Don Ramon has the key and I am in the cage; Don Ramon as well as I look upon this state of things as entirely natural and are far from regarding it as in any way an anomaly. And if a crazy agitator were to come and preach to us that all men are equal, we should both laugh him to scorn; Don Ramon with all his heart, I, it is true, only halfheartedly—but all the same I should laugh.

What Koestler says here about the relation between prisoner and guard, the atavistic dependency one comes to feel toward those who have total power over one's existence, was true in a way of Beth's relationship with all her doctors, her oncologist especially. In the same way that for Koestler the "whole mood of a night or an afternoon [would depend] on the tone of voice of Angelito or the warder" when they'd bring him food ("I react to friendly or unfriendly waves like a seismograph"), my

sister's moods, her hopes, her view of the world, understandably depended not only on her doctor's findings but on the doctor's tone of voice, his every gesture.

Reduced by her disease to almost infantile helplessness, she came to see her doctor as an all-knowing and all-powerful parent. Since her survival depended on his expertise, it was impossible for her *not* to invest that expertise with almost magical potency.

But in the course of that unavoidable projection of authority, something peculiar happened. Dr. P became not just her potential savior but also her potential judge. More than anyone else, early and late in her disease, he determined how she felt about herself. When she was doing well, meaning when she responded well to the treatment he prescribed, he bolstered her self-esteem by saying he was proud of her, she was his best patient, she was his favorite patient. But if he were the benevolent deity when she was doing well, when she responded to his treatment, he became the *deus absconditus* when the cancer had metastasized, and it was clear that she was going to die. Her status as patient may have changed, but her emotional attachment to her doctor hadn't. If anything, in the final stages of her illness, her need for his human empathy, his care, his interest in her, if not for his encouragement, was stronger than ever at the very point that he had disappeared. In her last days in the hospital, and even after she had moved into the hospice, over and over Beth would ask for Dr. P. She'd continue saying that Dr. P didn't like her anymore, he didn't want to see her, that she

had obviously let him down. In Beth's mind pleasing her oncologist and getting well had become one and the same thing.

Beth of course by then had been infantilized by the tumor in her brain, as well as by massive amounts of morphine. But it wasn't just the drugs and the disease that made her feel somehow responsible for failing to get better, that made her feel unworthy of the treatment her doctor, in all his wisdom, had provided. That dependency and helplessness were also encouraged, I think, partly by the chronic combination of high-tech treatments and hyperspecialized language: the repeated bone scans and MRIs that told nothing and everything, the hours she'd spent in waiting rooms, bored, anxious, anticipating two minutes of a doctor's attention, the feeling that her body was inseparable from the plastic tubes and monitors without which she couldn't live, not to mention the bewildering complexities of navigating the exclusions of her insurance coverage. Everything about her treatment undermined her sense of agency and power. In falling ill, Beth came to feel that she was serving the needs and interests of the medical profession, not being served by them.

On top of all her mortal grief and terror, Beth toward the end of her life also felt a wholly artificial and unjustified sense of guilt about her body and her illness. However much that guilt was a symptom of her disintegrating mind, it was also an emotional reflection or effect of the treatment she'd received, the emotional equivalent of the category into which she had been put when she had gone beyond the reach of cure or palliation. On her medical record she officially became a treatment failure—not someone whom the treatment failed, but someone who had failed the treatment.



About two weeks after we had moved into the hospice, I awoke to find Dr. P standing by Beth's bed. It was a little after seven in the morning. I have no idea how long he'd been standing there. In silence, he was looking down at Beth, his expression grim but controlled. Beth was awake. She was looking up at him, waiting for him to speak, it seemed. After a while, he said, "Let's see what they have you on." And he pulled out from beneath her pillow the automative syringe driver, or morphine pump, the thread-thin IV tube running from it to her shoulder. "Ah-huh," he said, "very good." Then he checked her chart and after another moment said, "So." Then more silence. Then his beeper went off. He glanced at it, said he had to go, but that he'd be back soon in a day or so to see how she was doing. He never so much as looked at me as he walked out. That was the last time we would see him.

All the same, I was glad that he had come. I was glad to see him standing there uncomfortably, fumbling with emotions that squared so awkwardly with his professionalism. Dr. P was an excellent doctor. Most of Beth's physicians were. I have no doubt that the medical attention he gave my sister was beyond reproach. As I watched him hem and haw ineptly at my sister's

bedside, I wondered about his other patients. How many did he have? How many of them at the moment were dying like Beth, or soon to be dying? Of course it would have been impossible for him to reciprocate their feelings, to attach himself emotionally to each of them as they had no doubt attached themselves to him. To survive in that particular subspecialty, to provide his patients with the best possible care, some measure of detachment would of course be necessary. At the same time, didn't he owe his patients what he or the nature of his profession had encouraged them to desire and expect? If, while they responded to his treatment, he was going to allow his patients to perceive him as a God, hero, or omnipotent parent dispensing praise and hope and self-esteem, didn't his obligations toward them as a fellow human being, as someone with whom they'd been intimately involved for months or years, continue even after, as a doctor, there was nothing else that he could do?

Why hadn't he returned any of Russ's calls two weeks ago when Beth was hospitalized? And yet it took him less than thirty seconds to return Bill Redwine's call, a fellow doctor, when he called on our behalf. That fact almost more than any other typified for me a skewed allegiance, that the doctor placed his obligation to his colleagues, and to the medical profession itself, above his obligation to his patient, and to his patient's family. Why didn't he wait till we were there with Beth before he broke the news to her that she had only days or weeks to live? And why did he prescribe that last dose of chemotherapy that, according to Bill Redwine, would only sicken the tumors on the lining of her brain but not kill them? Did that last treatment extend her life? By how much, a day or two? In doing so, it also ravaged her mouth and throat with sores, so that she paid for those potential extra days with extra suffering.

In *How We Die*, Sherwin Nuland describes the way oncologists and subspecialists in general are conditioned by their training as well as temperament to perceive their patients as problems to be solved, as riddles to be mastered, more than people to be cared for. According to Nuland, oncologists are driven by a preternatural fear of death. Each patient they bring back from the brink of extinction seems to confirm their own invulnerability. Those patients, on the other hand, who "fail them" dramatize the limits of their power, the frailty of their illusion of immunity from death that their professionalism helps them to sustain. Not to withdraw from their patients when they become a riddle that will not be solved is to confront their own mortality. Even more than the fear of lawsuits, it is the fear of death that compels the doctor to prolong life, at almost any cost, even after there's no hope of victory, even when, as in Beth's case, the prolongation only meant more suffering and pain.



After Beth died, and I returned home to my family in Chapel Hill, I received hundreds of condolence cards and letters from friends and acquaintances around the country. I was surprised at how much consolation I received from even the most cursory



expressions of sympathy. Oddly enough, almost the only person I did not hear from was my wife's brother, a neuro-ophthalmologist who lives in a nearby town. After several weeks passed, I wrote my brother-in-law expressing how hurt and disappointed I was by his failure so much as to acknowledge my sister's death. He didn't answer my letter. When my wife called to ask him why, he first said, "What letter?" pretending he hadn't read it, then he went on to say that he had glanced at it and since he saw that it had to do with an uncomfortable subject, he put it aside. When she pressed him to elaborate, he said that he could see that the letter expressed what he called "a dysfunctional response to the death of someone he didn't know" and he didn't feel at all obliged to answer. Eventually, he did respond, coldly but dutifully, after a good deal of pressure from his parents.

Now I should add that my brother-in-law is an excellent doctor, one of the top neuro-ophthalmologists in the country. A teaching physician at a prestigious university hospital, he's renowned for spending hours upon hours with his patients, and for ignoring the hospital administration's demands that he work in a more cost-efficient manner, that he generate more revenue by herding more patients in and out of his office in a given day. He refuses to compromise the rigorous standards of his professionalism in the name of money.

I wonder, though, if there isn't a connection between his indisputable excellence as a doctor, and his "discomfort" with the sort of feelings I demanded from him, between the rigorous standards by which he's lived the better part of his existence and his assumption that any expression of feeling beyond the bounds of what his discipline demands must be "dysfunctional." The biomedical nature of the word "dysfunction" is itself a reflection of his hyperspecialized view of life, of his

tendency to view even nonmedical experience through the narrow lens of his expertise.

"It's not that he doesn't feel anything," my father-in-law explained, trying to appease me. "It's that he feels too much, he just doesn't know how to show it." Initially, I dismissed this argument, still too aggrieved by his failure to show even a modicum of sympathy for me or for my family. But now as I think about how Dr. P stood paralyzed with awkwardness by my sister's bedside, I wonder if my father-in-law isn't right, to some extent. Dr. P and my brother-in-law are products of the hyperspecialized culture of medicine, a culture within which they have spent most of the waking hours of their adult life, and a good part of their adolescence. Within the margins of their role as problem solver, as biomedical guru, they feel what their profession enables them to feel; they're even comfortable with feelings like compassion so long as it's a doctor's compassion, the compassion of someone in control, of someone still effective, of someone with a problem that's still capable of being solved.

It could be, as I suspected at the time, that my brother-in-law just didn't feel enough to write me when I returned from Houston. And it could be that Dr. P was simply awkward in the face of someone whom he couldn't help. But what I now choose to think is that they both were capable of feeling, but were incapable of knowing what to do with how they felt. Though it seemed he struggled to maintain his superior role as doctor at my sister's bedside, checking the morphine pump, examining her chart, her status as a treatment failure forced him to face her not as a doctor but as a needy, fearful, fellow human being, as just another mortal citizen among the dying. She was asking him, as I had asked my brother-in-law, to speak a language that he couldn't master. □

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## Commentary

*J. Trig Brown, MD, MPH, Chief, Internal Medicine, Carolina Permanente Medical Group, Clinical Associate Professor, UNC Dept. of Medicine*

It is a privilege to comment on this excerpt from Alan Shapiro's new book, *Vigil*. The author provides physicians with an important message. He clearly shows how, in the terminal phase of his sister's illness, the medical professionals failed in their most important task, to comfort always. This is not a message physicians want to hear, but it is one we should thank him for delivering. With his writer's eye and mastery of words, he paints a vivid picture of how "...Beth came to feel that she was serving the needs and interests of the medical profession, not being served by them." This is a tragedy.

Is Beth's an isolated case? I am sure it is not. Fortunately, it is not an altogether common outcome either. Most of the

physicians I have worked with, in a variety of settings over 20 years, have had communication skills that enabled them to connect emotionally and therapeutically with their patients and their patients' families.

Did the doctors I have known learn their skills in medical school or during their residency training? I doubt it. Were Beth's physicians asleep during class or absent on the days that "interpersonal communication" was taught? Of course not. But it is probably fair to say that if you have not learned how to interact with people on intimate, human terms by the time you enter medical school, it is too late.

The lessons Mr. Shapiro gives us for dealing with dying patients are not complex: be there at the end, acknowledge the family's pain, return the family's phone calls promptly, gather the family for support before discussing the patient's poor prognosis, do nothing to prolong the suffering and pain. Learn-

ing these lessons does not require a new curriculum, an innovative seminar series, or major alterations in the residency training program.

Mr. Shapiro's observations are acute and his lessons very important, but I do not agree with his inclusion of Sherwin Nuland's explanation of physicians' behavior. Nuland opines that "...subspecialists in general are conditioned by the training as well as temperament to perceive their patients as problems to be solved, as riddles to be mastered, more than people to be cared for." This explanation places too much confidence in the medical training experience. Yes, our training can take credit for teaching us how to listen to a heart but not for teaching us to have heart. □

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**G. Ralph Corey, MD, FACP, Associate Professor of Medicine, Director, Internal Medicine Residency Training Program, & Jennifer S. Li, MD, Assistant Professor of Pediatrics, Duke University**

We read Alan Shapiro's essay with a sense of unease and embarrassment. Embarrassment because of the failure of the medical community to adequately serve the expectations of the patient and her family. Unease because of the degree of Mr. Shapiro's anger, anger directed not only at the physician caring for his sister, but as well at a physician family-member who failed to respond with the support Mr. Shapiro expected. It is obvious that Mr. Shapiro has been through a very difficult and sad experience with a prolonged illness and loss of his sister. His anger may be a phase of the grieving, healing process. But this essay also brings forth the concern that his anger arises, at least in part, because physicians are not empathetic "enough," not as empathetic as former generations, not as compassionate as they can be taught to be.

Before we go too far along the road of guilt and self-incrimination, however, we must remember that this is an anecdote, one person's experience. As such, it gives us no clue as to how widespread is the lack of compassion in the medical community. We do know from other data that patients' satisfaction with doctors is declining. Unfortunately, it is very difficult to determine whether this decline results from less empathy on the part of doctors or from higher demands and expectations on the part of the general public. Similarly, we know that the number of malpractice lawsuits has gone up tremendously during the past 20 years and, again, we wonder whether this is due to physicians' failure to care for patients or to society's feeling that life should be easier, suffering should not exist, sickness should be easily cured.

This brings us to one of the most important aspects of Mr. Shapiro's chapter: *the care of the dying patient*. Because both technology and our therapeutic armamentarium have progressed rapidly, patients and physicians themselves feel that there must always be something more that can be done. Even when all

options have been eliminated, there is an expectation that we can trick death. Many physicians in this situation feel helpless; failures; unable to face their own inadequacies. They thus are unable to face their patients with the only the ancient things left to give: time and compassion.

How can we improve this situation? Can we teach compassion? Can we change the personalities of medical students or housestaff? Can the medical school, as an institution, teach family values, empathy, human kindness? And in this era of disgruntled teachers, working under increasing loads and on frenzied schedules, how can medical students ever get to see that the most valuable gift that doctors have to give a patient is our time and attention?

We don't have answers to any or all of these questions. We do feel that compassion and kindness must be modeled, not lectured about. Our students must *see* us spend time helping, listening to, and supporting our patients. Only then can we expect a breed of physicians better than ourselves. □

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**Peter R. Lichstein, MD, Professor of Medicine, Vice Chair for Educational Affairs, Residency Program Director, Department of Medicine, ECU School of Medicine**

*The trouble with prisons is not that they break hearts.  
Hearts are meant to be broken, but like their own walls,  
prisons turn the hearts of those within to stone.*

—Oscar Wilde

Mr. Shapiro's story of his sister's illness left me with a deep sadness for the patient and her physician. Both seemed imprisoned by suffering, with no clue about how to escape.

The brief excerpt leaves many questions unanswered: Did the patient have a primary care physician? If so, where was that doctor during the illness? What led to the patient's dependency and her physician's apparent need to dominate—a dynamic in which the patient felt more a prisoner of her physician than of her disease. What a tragic situation!

This case represents an extreme example of what can go wrong with the doctor-patient relationship. I know many doctors whose hearts are more open; who are able to give voice to their feelings; who know themselves well enough to avoid using patients as pawns in their own psychological struggles; and who, most importantly, do not abandon their patients as death approaches. Nevertheless, Mr. Shapiro's story should not be ignored. It is telling us something important about what patients and families need from their doctors. We must take notice.

Doctors need training in the compassionate care of all patients, including those who are dying. We cannot assume that good people will "just naturally" know how to proceed in such difficult matters. Specific training should include how to break



bad news, how to talk with patients and families about death, and how to involve them in making decisions about end-of-life care. Patients must be encouraged to voice their values and wishes, and these should be used in tailoring a treatment plan. I think it is fair to say that these issues are at least touched on in the curricula of most medical schools and residency programs; I know that medical ethics and communication skills are emphasized at East Carolina University. There is support for such education from professional organizations like the American Board of Internal Medicine. But since self-awareness is an important dimension of learning, all doctors—like those in Mr. Shapiro's story—could benefit from personal reflection and discussion of these issues with others.

Still, there is reason to be concerned about the effectiveness of formal teaching because the work only *begins* in the classroom. Interpersonal skills must be modeled at the bedside, practiced, and critiqued. Teaching physicians must demonstrate and reinforce compassionate care on the wards and in the clinic. Clinical teachers must accept no less from their students and residents.

In my experience, the attention of students is best captured when their own patient is the focus of learning: when their own patient is dying. Of course, a few students just don't seem to get it. Therefore, we must encourage admissions committees to select students who have an interest in and aptitude for interpersonal relationships, and medical school faculties should do a better job weeding out students who do not support the human values our patients demand.

But I do not think that doctors, in general, lack feelings, and I certainly do not agree with Mr. Shapiro's musings about "a connection between [my brother-in-law's] indisputable excellence as a doctor, and his 'discomfort' with the sort of feelings I demanded from him." Doctors, like everyone else, sometimes feel awkward, angry, sad, or anxious—feelings that need not be denied for fear they will be blinding. In fact, most doctors learn that feelings often lead to understanding, connection, and fulfillment.

Of course, it is true that doctors are trained to solve problems. At times, this means that the patient's illness will be viewed as a puzzle to be mastered, and treatment as a game to be won. But good doctors blend their zeal for solving problems with an abiding allegiance to the patient as a person needing care. Their relationships with patients continue over time, and they care for their patients even when cure is not possible. Patients need such doctors and so do our students. □

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**Darlyne Menscer, MD, Department of Family Practice, Carolinas Medical Center, Charlotte**

As a residency faculty member for 15 years, I have found that physicians vary as widely as the general population in their ability to express empathy. This happens despite genuine efforts by medical school admission committees in recent years

to consider communication skills as a criterion for admission.

Feelings of empathy are not always easily translated into behavior. In medical schools and most residency programs, physicians-in-training receive at least some instruction about the psychological needs of terminal patients and their families. However, in the actual clinical situation, young doctors often get conflicting advice from their physician mentors. Few doctors have a chance to consider and reflect on the critical questions: Is it appropriate for doctors to reveal their own emotions—perhaps shed tears—in front of patients or families? Is this a weakness or a strength? How do physicians deal with the emotional drain of supporting dying patients and their families? Does professional "distance" help?

For most primary care physicians, managing a terminally ill patient is one of many regular tasks. Often the physician has known the patient for years before the terminal diagnosis is made, and may also care for other family members. In those instances, physician and patient have a history working together, a history that precedes diagnosis of any serious illness.

For oncologists—such as the physician Mr. Shapiro describes—all patients have serious illnesses. Despite advances in cancer treatment, at any one time a significant percentage of an oncologist's patients are terminal. In some cases, patient and oncologist have had a long relationship during which, at least for some time, the cancer has been in remission. But in other cases, the oncologist has known the patient for only a short time, has been able to offer only palliation (and at the cost of considerable toxicity). Even when the improbability of improvement is emphasized from the beginning, some patients—especially younger ones—find the diagnosis of cancer so devastating that they are willing to try anything at least once. As a result, not only do oncologists have a larger percentage of terminally ill patients than physicians in primary care, they often have had no long-term relationship with a patient before the final phase of the illness. I am not an oncologist, but it seems to me that it would be asking a lot of such specialists to meet *all* the emotional, as well as medical, needs of *all* terminally ill cancer patients and their families—even with the help of hospice.

If the patient has an established primary care doctor, one who was involved before the diagnosis of cancer, one who made the referral for specialist care, I believe *that* doctor should maintain the relationship with patient and family, even though the oncologist may make many medical decisions. Then, if treatment is not successful, the primary care physician can help the patient and family during the terminal phases of the illness. Often responsibility for pain management and other specifics of care can be transferred to the primary care physician.

Emotional support for the patient and family can come from multiple physicians. If at least one of them has known the patient through good times and bad, and if that physician has fewer terminal patients, providing such support is less draining. I feel that this system best provides patients and families with the support they need in a manner that physicians can sustain. The approach is not new, but it is far from the norm and deserves wider discussion. □

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**William G. Porter, MD, Department of Internal Medicine, Carolinas Medical Center, Charlotte, Member, Journal Editorial Board**

Reading Alan Shapiro's essay, I was reminded of DeWitt Stetten's memoir<sup>1</sup> about gradually going blind. One of his discoveries was how indifferent his ophthalmologists were to blindness. So long as a glimmer of vision remained, the doctors labored mightily to preserve it, but once the final darkness descended, the disease and its victim no longer engaged them. The patient had to discover for himself how to be a blind man.

Shapiro's sister's dependency on her physician did not end when the disease-centered treatments stopped working. Indeed, she needed him then more than ever. Why, then, did he withdraw? Was it, as Shapiro suggests, that dying patients require physicians to speak a language they have not mastered? If so, how might we learn—or be taught—to speak it?

Sometimes we learn it from our elders. Dr. Byrd Leavell, the senior hematologist who taught me at the University of Virginia, would enter the room of a dying patient, sit down at the bedside, take the patient's hand and ask how things were going. He would listen to whatever the patient and family had to say, betraying no sense of being in a hurry, because he wasn't. Then he would say something like, "Let's see what we can do to help you feel better; I'll keep a close check on things." He had done little of "substance," yet you could feel the patient's spirits lifting as he rose to leave. And it took surprisingly little time.

But not every physician will be lucky enough to have such a compassionate mentor. And such mentoring, while helpful, is not enough in itself. Hence, compassion and empathy need to be taught in medical school. Not in a dark room with slides, or in a pedantic, jargon-freighted exegesis of "sick roles" and the stages of grief, but by example at the bedside, and by stories.

In his essay, "The Nature of Suffering and the Goals of Medicine," Eric Cassell points out that what little we know about the ways people react to illness "has been learned largely from literature, not medicine."<sup>2</sup> That is why at some medical schools, students read and discuss stories about how people react to illness, aging, and impending death. I can think of no better way, short of personal experience, to learn about them.

*On Doctoring*,<sup>3</sup> the anthology of essays, stories, and poems given to all medical students by the Robert Wood Johnson Foundation, would make an excellent text for a seminar on patient-physician communication. The book is filled with examples, from the Old Testament to Kafka, of human suffering—the opportunities and challenges it presents for physicians. Take Raymond Carver's poem, "What the Doctor Said":

He said it doesn't look good  
he said it looks bad in fact real bad  
he said I counted thirty-two of them on one lung before  
I quit counting them  
I said I'm glad I wouldn't want to know  
about any more being there than that..."

What better way to begin a discussion of how (and how *not*) to break bad news? What better way than stories to remind seasoned clinicians and beginning students alike that an attentive ear, a warm touch, just being there to the end, are more important to the relief of suffering than a morphine drip. □

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**Eugene A. Stead, Jr., MD, Professor Emeritus, Duke University School of Medicine, Consulting Editor, NC Medical Journal**

Twenty years ago one of my former medical students, by then head of a distinguished university oncology unit, asked me to attend a three-day retreat with him, the members of his division, former residents, and fellows. The meeting was in an excellent resort area and the invitation included my wife. I told my former student that I had no special expertise in oncology and gave him the names of several persons whom I knew would add more to the retreat than I could. He thanked me, but insisted that I come.

At the retreat, I met old friends and attended all sessions, but added little in the way of medical expertise. Mid-way through the program, my former student and I had a long one-on-one session. I asked him why he chose me. "It's very simple," he said. "You once watched me refuse to let my patient die. Then, you gave me permission to let her go, and helped me not to feel guilty." Twenty years later, he was still grateful for my help.

Early in my medical career, I watched my oncologist friends care for patients with childhood leukemia. At first, all of the patients died. That was not surprising; to kill the cancer cells, the children themselves were brought close to death. After many failures a few survived. Years later, the success rate approaches 90%. Oncologists cannot die with each of their patients. They do the best they can, but no doctor can be all things to all patients.

The world is better for the few people like Professor Shapiro who, through poetry, make our world more human and add to the joy of living. Fortunately for doctors, most of our patients have nervous systems that are less sensitive than Mr. Shapiro's; they go through life with less suffering. Since all patients are different, the doctor tries to adapt his care to make the best fit with his patients' nervous systems. Inevitably, the doctor will fail many times. At best, the doctor knows that he, and not his patient, has failed. □



In my opinion, the lack of compassion Shapiro describes is not confined to interactions surrounding terminally ill patients, but the imminence of death provides a unique opportunity for the doctor to abandon science and relate to the patient on a humane level. Our medical education system should seize those chances to help students understand the issues, critical as they are to the heart of medicine. To do so would be of value across the spectrum of medical endeavor. Effective implementation would require intense faculty involvement with students on their clinical rotations, rather than leaving them to deal with death situations guided only by interns or residents who themselves lack training in or experience with the dying process. We must do this if we are to recover from the dreadful situation described by Shapiro.

Physicians need a whole array of specific skills related to the dying process. A search of the literature under the title of “palliative care” uncovers a number of helpful studies worthy of attention in the medical curriculum—concepts applicable to medical practice far beyond deathbed situations. Fortunately, the movement toward primary care practice has renewed our attention to these issues. Stronger medical school curriculums for generalists will certainly provide new opportunities to offer our students humanities experiences and opportunities to look at and reflect on the pressures involved in being a physician. My hope is for a new breed of physician, one capable of reaching beyond the technical aspects of practice to relate to the patient and family as human beings. □

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*It costs so much to be a full human being that there are very few that have the enlightenment or the courage to pay the price.... One has to abandon altogether the search for security and reach out to the risk of living with both arms. One has to embrace the world like a lover. One has to accept pain as a condition of existence. One has to court doubt and darkness as the cost of knowing. One needs a will stubborn in conflict, but apt always to total acceptance of every consequence of living and dying. —Morris L. West, The Shoes of the Fisherman*

Alan Shapiro describes an oncologist, Doctor P, who treated his sister for cancer prior to her death. Sadly, compassion eludes Doctor P as his patient lies dying. He refuses to abandon the biomedical laws that govern his trade, and be human at a time when being humane is all that is asked. He did not know George Engel's dictum, which reversing the common phrase, says "Don't just do something, stand there." Being present and fully human, feeling and acknowledging the events of the moment. These are all that is required of the physician at the time of death.

Physicians who risk compassion risk a part of themselves. By compassion I mean recognizing and appreciating the humanness within and between ourselves and our patients. I mean the "me" and the "you" together, dealing with one issue. Patients value beyond measure the "presence" of a physician. I mean being physically present, being close, having full eye contact, offering a comforting touch. Compassion and empathy have become desirable goals for patients and for students, who now demand more than mere science of a physician-patient relationship. Even as medicine reaches higher and higher for technical wonders, there is a cry that the men and women who

Continued


wield these wonders remain sensitive, merciful, concerned, and available.

Where do today's doctors learn compassion? A colleague of mine told me about his experience teaching in a seminar on empathy. Using role-playing, scripts, experiential learning, and video-prompted discussion, he did his best to "teach" this human emotion. In the end, "it was a bust," he said. I am not sure why, but perhaps compassion is something that one has at birth; perhaps physicians are born compassionate or compassionless, and admissions officers should screen for a genetically compassionate subtype in candidates for medical school. Or perhaps physicians learn empathy from their families of origin or from personal experiences; perhaps from enlightenment; perhaps from the modeling that they see in the thoughtful concern of faculty and community physicians. I suspect that when students see compassion, they absorb it; when they do not see it and instead see rigid adherence to a narrow biomedical model of illness, they adopt and portray those values instead.

To teach compassion means to be comfortable in front of

students with one's own feelings, faults, and frailties. The relationship a teacher develops with a student creates the medium for learning compassion. Within this context, then, lies a "curriculum" for learning about human boundaries (those psychological ones), transference and countertransference, dependency and regression—issues that escaped Doctor P.

Now Doctor P knew about patient dependency issues, about the superficial aspects of power and control, but he was not aware of the same needs buried deep within himself. He had not learned about the power that comes with collaboration, from working *with* rather than just *for* the patient. He had not yet learned about the strength and satisfaction that comes with including the patient and her family into the decision-making, especially the critical decisions at the end of life. Given quiet time and space, patients and families are able to discover their own needs; given a physician's receptive ear, they are able to express those needs. It is in this setting that families and physicians find the strength for "total acceptance of every consequence of living and dying." □



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# Scapegoats for the Organization?

## Physicians, Managed Care, and Medical Malpractice

Kenneth De Ville, PhD, JD

A managed care revolution is irrevocably transforming the delivery of health care in this country. Managed care organizations (MCOs) contain costs by influencing, channeling, and limiting decision-making by physicians. By so doing, MCOs appropriate to themselves an element of medical authority.

Under a fee-for-service system, the physician and patient function as sole decision-maker. Under this system, malpractice liability for patient injury falls on the individual physician.<sup>1</sup> The medical and legal culture created by fee-for-service is rapidly coming to an end, but the malpractice liability system has not adjusted to the basic changes in the way medical decisions are made.<sup>2</sup> Medical malpractice law is still (and disproportionately) focused on the individual treating physician. Furthermore, a variety of legal and practical hurdles make it difficult—sometimes impossible—to hold MCOs liable for injuries that result from cost-containment policies. As a result, the physician's legal situation has become more complicated, and the MCO has avoided commensurate legal risks. In a way, physicians serve as liability "scapegoats" for MCOs. Carol L. O'Brien, attorney for the American Medical Association, lamented in the *New York Times*: "[MCOs] are shifting virtually all of the risk of patient care to physicians, even though [they] can force doctors to change their clinical decisions by threatening to terminate their contracts."<sup>3</sup>

In this article I examine the notion of physician as "liability scapegoat" and speculate on the most likely and suitable path of legal development and reform over the next several years.

### The Predicament of the Physician Under Managed Care

The small amount of inconclusive case law on the topic implies that physicians working for MCOs *must recommend* all treatments and diagnostic tests that are deemed necessary and within the standard of care—even if their costs will not be covered by

the MCO. Physicians probably also have a responsibility to act as financial advocate for the patient, and try to convince the MCO that the recommended treatment is necessary.<sup>4,5</sup> If all attempts to secure payment fail, physicians must tell patients that they can pay out-of-pocket for the medical care. Physicians who follow these guidelines and document that in the medical record, probably will not lose a malpractice suit for undertreatment.

That oversimplified summary of MCO-physicians' legal duties fails to depict fully the doctors' current dilemma. For example, MCOs may react unfavorably to repeated recommendations for care that the MCO is trying to limit (through utilization review, practice guidelines, or otherwise). Vigorous patient advocacy may undermine physicians' job security. Moreover, outright refusal to pay accounts for only a portion of the MCO cost-containment measures currently in place—many allow physicians to recommend treatment, then penalize those doctors through the withholding or deferral of bonuses, or removing them from MCO employment.

Current law and MCO cost-containment strategies can put physicians in a double bind, making them choose between recommending a treatment that threatens their income or job security, or not recommending it and facing threat of a malpractice suit. This is especially unfair since MCOs are insulated from their own cost-containment decisions. MCOs have devised legal "golden parachutes" that allow them to bail out of the liability related to their cost-containment strategies. The difficulty in holding MCOs liable for undertreatment demonstrates the problem of a new, highly administered, cost-conscious medical practice based on the ideological supports of the old one.<sup>1,2</sup>

### Golden Parachutes for Liability

Courts have traditionally held that institutions (such as MCOs) are not licensed to practice medicine, and therefore could not be

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medically negligent. A lawyer who frequently represents managed care groups recently claimed, "HMOs normally cannot make medical decisions.... Those determinations must be made by treating physicians.... The HMO should not be liable for the alleged malpractice of the doctors."<sup>3</sup> There was once some logic to this stance, but new institutional practices have made it less tenable. Some forms of cost-containment, like utilization review, *do* constitute the practice of medicine because they determine whether a particular diagnostic or treatment modality is worth the cost.

MCOs have escaped liability for a variety of other reasons. Courts usually hold employers liable for the actions of their agents and employees—a practice referred to as *vicarious* or *agency* liability. Health plans and hospitals have not been held vicariously liable for the actions of affiliated physicians because physicians have been deemed professionals—*independent contractors*—not employees. The traditional view of physicians as independent contractors has made it difficult to hold managed care plans liable for the actions of physicians.

## ERISA

Perhaps the greatest barrier to holding MCOs at least jointly liable for medical malpractice and undertreatment is the 1974 Employment Retirement Income Security Act (ERISA).<sup>6</sup> ERISA was passed by Congress to regulate and protect employee pension and benefit plans. In order to allow effective national regulation of employer-provided benefit plans, ERISA *pre-empts* or supersedes all state law relating to employee benefit plans, including health benefits. Under ERISA, federal remedies for abuses of employee benefit plans are limited to the dollar value of the benefits that should have been provided. For example, if an employee health insurance package does not furnish what it promises, the wronged employee can sue in federal court to secure the promised benefits. But the employee cannot sue in state court, because the claim "relates" to an employer-provided benefit plan.<sup>7</sup>

ERISA was drafted in a medical world still dominated by traditional indemnity insurance, but today employer-provided health care is dominated by MCOs. ERISA, which applies to two-thirds of all employee health plans, has become an important, even central, factor in suits against MCOs. For example, in 1993 an MCO was sued for delaying pre-certification of a patient's heart surgery. During the delay, the patient died. A federal court ruled that the claim was preempted by ERISA, meaning that the patient's family could not sue in state court. Since the cause of action was related to plan benefits, the plaintiffs could not recover tort or malpractice damages from the MCO. The legal claim was limited to the dollar value of the services denied.<sup>8</sup> In a similar case, a woman with a complicated pregnancy was discharged from hospital to home care because the MCO plan did not authorize inpatient coverage. She ultimately lost her 32-week fetus. The Fifth Circuit Court ruled that her malpractice suit against the MCO was preempted by ERISA.<sup>9</sup>

ERISA does *not* apply to individual suits against physicians. As a result, ERISA provides a dramatic defense for MCOs and at the same time leaves dissatisfied patients with only one target—the treating physician.

## Potential Reactions to Physician's Plight

Some might argue that the liability system needs no reforming. After all, the threat of liability is an effective check on overzealous cost-containment. Physicians should not contract with MCOs whose cost-containment mechanisms force them to provide suboptimal care; they should not associate with MCOs that penalize them for providing necessary care or for acting as a patient advocate. This argument disregards the current reality that health care is provided in an institutional or group setting. It ignores physicians' lack of options about where and how to practice. It falls too harshly on physicians who must enforce the cost-containment measures that society is demanding. Finally, it ignores the fact that wrongful conduct by institutions may go unpunished and undeterred.

## Wholesale Legislative Reform?

Should legislatures undertake legislative reform of the malpractice system to account for managed care? Should states revamp the tort structure relating to medical malpractice to account for physicians' cost-containment actions, perhaps by weighing in evidence of the practice guidelines produced by independent professional boards? This would provide a lower limit to practice below which MCO care could not drop without risking liability, and protect physicians who practiced within those guidelines. Still, there are problems in presuming that care is not negligent merely because practice guidelines were followed. Practice guidelines are not yet methodologically sophisticated enough to rely on for definitive guidance.<sup>10</sup>

Other legislative reforms are possible. Haavi Morreim has proposed dividing the standard of care into: a "standard of medical expertise," and a "standard of medical utilization." The standard of medical expertise would judge a physician's skill, care, training, and judgment, and require that procedures be performed non-negligently. On the other hand, treatment decisions based on allocation of resources would be judged by a standard of medical utilization established by third-party decisions about desirable and affordable levels of resource use.<sup>11</sup>

Another legislative reform would allow physicians to claim institutionally imposed cost-containment measures as a defense. Whenever foregone treatment became an issue in a malpractice case, physicians could cite the allocation policies of the plan and justify the application of those principles to the patient in question.<sup>12</sup>

All these proposals would represent a fundamental restructuring of the current legal approach to medical malpractice. All are problematic. Allocation decisions are not entirely



distinct from treatment decisions since they involve medical judgments; medical judgments are, in part, allocation decisions.<sup>13,14</sup> It would be difficult to weigh the economic reasonableness of treatment decisions involving individual instances of resource allocation—if such economic hairsplitting could even be accurately completed. Such complicated decisions may not even be necessary. In some respects the “standard of care” enunciated by medical experts has always incorporated judgments about both a medical science component and a value component—whether the treatment or diagnostic test was worth doing, all things considered.<sup>13</sup> The medical profession has been able to adapt its standard of care to historical, scientific, social, and regional variations. The basic principle (to “act as a reasonably prudent physician would”) allows the profession to make judgments—even in the context of managed care—for a particular patient, in a particular plan.<sup>14</sup>

## Enterprise Liability

Enterprise liability represents another legislative reform option. Enterprise liability holds that if health care is delivered in a highly controlled environment that profoundly restricts individual autonomy, then institutions rather than individuals should be liable for patient injuries. Enterprise liability would make health plans liable for negligent injuries caused by affiliated physicians or other institutional providers. Physicians and other health professionals would be completely immune from suit. MCOs, institutions, and licensure boards would take over fully the job of monitoring and disciplining negligent health care providers.<sup>15</sup>

Enterprise liability is a radical solution, but it is not preposterous. It represents a rational and coherent reaction to tightly controlled, organizational health care, and the demise of the individual, autonomous practitioner. Since institutional providers control the care provided under their auspices, they may be best situated to monitor and correct problems. Enterprise liability would discourage severe rationing of care, and keep MCOs from pushing cost-containment to the point of damaging patient care. If cost-containment measures did endanger patient well-being, enterprise liability would assure that physicians did not bear the brunt of the legal risk.

Despite the benefits, there are a number of drawbacks. Enterprise liability would solidify institutional control over physicians, further decreasing professional autonomy. Enterprise liability also defies the logic of the legal system. Physicians who are genuinely negligent should be culpable for that negligence. Without individual liability, tort law loses its power to deter individual actors. And holding MCOs and institutions solely liable might increase both the number of suits and the size of awards.

The practical hurdles to implementing enterprise liability are daunting. Enterprise liability might not have the same justification, impact, and effectiveness in differing managed care and institutional configurations. And some practitioners

will not fall under the full and all-inclusive control of an institution or plan. A nationwide system of enterprise liability would require abrogation of negligence law in 50 states—a profound legislative and political challenge. So, while enterprise liability has some attractions, its many problems make it an unlikely, and probably unworthy, candidate for reform.

## Incremental Common Law Reform

If wholesale reform of the tort system is inadvisable, what can be done? There are good arguments for amending ERISA (while preserving its beneficial aspects). This would allow recovery of damages from MCOs whose negligent or wrongful cost-containment policies cause injury. Former US Secretary of Labor Robert B. Reich has called for such legislative action.<sup>3</sup>

I believe that most change will and should come not through legislative adjustment, but through the courts and the evolution of the common law. Law is a remarkably flexible social institution, albeit sometimes a bit slow.<sup>13,14</sup> As courts face cases implicating not only physicians but also organizations, they will extend liability to MCOs.<sup>16</sup> After all, hospitals, too, were once virtually immune from suit. It is perhaps a great irony that plaintiffs’ attorneys may play a major role in assuring that the physician’s risk will ultimately also be the MCOs’ risk.

The notion of physicians as “liability scapegoats” for MCOs is a misperception of what is currently occurring in the courts. MCOs are escaping liability, but not nearly as easily, or as frequently, as many believe.<sup>17</sup> In non-ERISA contexts, courts are holding MCOs liable via vicarious liability. Courts once distinguished between “employees” and professionals (who were independent contractors). Now, courts have found a number of ways to hold institutions like MCOs liable for acts of affiliated physicians. The more control an institution exercises over the work of the physician, the more readily courts find liability. This transformation has already occurred in hospital law, and is now beginning to occur in managed care. The central test—the test of control—is applicable in highly administered MCOs. Courts have found that MCOs which exercise a substantial degree of control may be subject to claims when a physician injures a patient. Courts recognize that MCOs monitor and control physicians’ actions, and have imposed vicarious liability to reflect institutional participation in the medical decision-making process.<sup>16,18p937-40</sup>

MCOs have also been held liable through the theory of ostensible agency. Not yet applicable in all jurisdictions, ostensible agency (or apparent agency) holds institutions responsible for the actions of physicians, even if there is no employer-employee relationship. Ostensible liability is imposed *if the patient believed* that a physician acted under the institution’s authority, and if the institution gave the patient reason to believe that it controlled the care provided by the physician. The promotional and advertising literature of MCOs often speak of “total” or “complete care” programs, so ostensible agency may be fairly easy to prove.<sup>16p321-323</sup>

When courts rule that MCOs are liable for the actions of physicians, they strongly discourage MCOs from demanding irresponsible cost-containment by affiliated physicians. If an MCO implements a negligent cost-containment strategy, both the MCO and the treating physician can face damage claims when patients are injured. The more control an MCO exerts, the more likely it is to be held responsible for injuries to patients. Physicians remain liable when they deliver substandard care, but they are not placed in legal peril because of rigorous institutional cost-containment measures.

## Direct Liability

"Direct liability" stems from the duty to refrain from negligent actions or omissions that pose a risk of harm. Courts have found MCOs directly liable in a variety of contexts, including the negligent selection, retention, and supervision of medical staff.<sup>17</sup> Once the ERISA barrier has been hurdled, MCOs have been held liable for negligently designed and implemented utilization review and other cost-containment mechanisms. If an MCO's utilization review or other policies lead to decisions that cause injury to a patient, the MCO may be held liable.<sup>1p428, 5</sup> Some trial courts have allowed assertions that financial incentives and disincentives can corrupt a physician's judgment and lead to wrongful injury.<sup>16p.336-7</sup> Actions based on the negligent design and implementation of cost-containment strategies provide powerful disincentives against pressing cost-containment too far.

Physicians have a moral and legal duty to counteract irresponsible pressures from a MCO, to inform patients about necessary care, and to encourage the MCO to provide such care. Who will make decisions about the appropriateness of behavior by physicians placed in such a position? Mostly, other physicians who can testify as to what "a reasonably prudent physician would do in the same or similar circumstances." Juries can weigh competing evidence from expert witnesses and decide the case. In theory, this allows the profession, through experts, to determine its own legal standards of conduct,<sup>13p2006</sup> and to take the changed context of managed care into consideration.<sup>14</sup>

## ERISA Redux

ERISA's preemption provision remains a hurdle, but an increasing number of rulings have allowed actions to proceed even without legislative amendment of ERISA.<sup>16,19</sup> The courts are still divided on the issue, but some plaintiffs have been allowed to sue MCOs under vicarious liability, ostensible agency, and negligent supervision theories.<sup>20</sup> It is likely that courts, as they understand better the dynamics of the new delivery system, will continue to allow such actions.<sup>1p418</sup>

Recall that ERISA bars state tort actions relating to whether the benefits of a health plan were withheld, but not necessarily complaints relating to the *quality* of the benefits delivered.

ERISA will probably continue to bar suits that refer unequivocally to a benefit claimed, such as a refusal to pay for bone marrow transplantation in breast cancer. These suits will have to be litigated through the federal courts under ERISA, and are unlikely to affect the liability of the treating physicians. However, suits claiming that an MCO's negligent or wrongful behavior caused them to suffer a low *quality* of medical treatment, may succeed. Federal courts may hold that ERISA does not apply and that plaintiffs can sue in state court. If this occurs, MCOs will be discouraged from instituting cost-containment strategies that put themselves and their affiliated physicians at risk of suit.

## Courts or Legislatures?

Liability reform for the new health delivery environment will depend on whether courts or legislatures can deal with the issues more effectively. Legislatures are effective fact-finding and debating forums in which to develop policy that reflects the public will. On the other hand, by shaping the common law and interpreting statutes, courts may provide a superior and less problematic mechanism. Courts and the common law system can adapt existing law to new situations and arrangements as they arise.

There are negative consequences of relying on common law rather than decisive legislative action. Court-initiated reform takes considerable time before all the issues are fully resolved. This does little to assuage the short-term pain caused by an outmoded legal system under which physicians have to operate in an environment of legal uncertainty and increased risk. But MCOs, too, work under some legal uncertainty, which may blunt more aggressive and problematic cost-containment measures.

There are problems with legislative remedies, too. Legislative reforms result not only from reasoned deliberation but from compromise and political pressure as well. The unintended consequences of rapidly drafted legislation are legion, and especially so in the current environment of perpetually changing health delivery mechanisms. Vagueness on one hand, and hyper-specificity on the other, are endemic to statutory law—especially that relating to the medical profession, which by its nature is a case-by-case endeavor. It is not at all clear that statutory reform would provide greater legal certainty regarding physicians' liability in an MCO environment.

## Conclusion

A liability system becomes ineffective and inappropriate when the underlying professional, economic, and social relationships to which it applies are changed. Because MCOs and physicians now jointly deliver health care, both are in position to optimize the risks and benefits associated with particular patient's medical condition.<sup>1p439</sup> This means that physicians should not be



solely liable, but should share liability with MCOs. Such an expansion of liability is taking place; it will ensure that MCOs cannot use physicians as liability scapegoats and ultimately will

distribute liability risks to the appropriate parties dependent on the type of medical relationship in which they participate. □

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**First Year Death Benefit = \$520,016**  
**(First Year Minimum Premium = \$3,150, Cash Surrender Value = \$2,498)**  
**Surrender Charge In Both Cases = \$0**

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# Health Watch

VOL. 58 - NO. 4 - SEPTEMBER/OCTOBER 1997

## Domestic Violence

### SERVICE PROVIDERS & ABUSER TREATMENT PROGRAMS

*Editor's note:*

*This installment of Health Watch features a comprehensive and inclusive resource to treatment programs that aid and assist both victims and perpetrators of domestic violence and abuse. It is intended for health care professionals to use when referring patients to the proper services in their areas.*

*There are two sections, both listed by county. The first, supplied by the North Carolina Coalition Against Domestic Violence (919-956-9124) lists domestic violence service providers. The second, provided by the North Carolina Council for Women (919-733-2455), lists abuser treatment programs.*

#### DOMESTIC VIOLENCE SERVICE PROVIDERS

ALAMANCE COUNTY  
Family Abuse Services  
PO Box 2192  
Burlington, NC 27216  
Office: (910) 226-5982  
Crisis: (910) 228-0360

ALEXANDER COUNTY  
(see Iredell County)

ALLEGHANY, ASHE, and  
AVERY COUNTIES  
(see Watauga County)

ANSON COUNTY  
(see Richmond County)

BEAUFORT COUNTY  
Options to Domestic Violence &  
Sexual Assault  
PO Box 1387  
Washington, NC 27889  
Office: (919) 946-3219  
Crisis: 800-682-0767

BERTIE COUNTY  
(see Hertford County)

BLADEN COUNTY  
(see surrounding counties)

BRUNSWICK COUNTY  
Hope Harbor Home  
PO Box 230  
Supply, NC 28462  
Office: (910) 754-5726  
Crisis: (910) 754-5856

BUNCOMBE COUNTY  
Helpmate  
34 Wall St., Ste 702  
Asheville, NC 28801  
Office: (704) 254-2968  
Crisis: (704) 254-0516

BURKE COUNTY  
Options  
PO Box 2512  
Morganton, NC 28680  
Crisis & Office: (704) 438-9444

CABARRUS COUNTY  
CVAN Battered Women's Program  
PO Box 1749  
Concord, NC 28026-1749  
Office: (704) 788-1108  
Crisis: (704) 788-2826

CALDWELL COUNTY  
Shelter Home of Caldwell County  
PO Box 426  
Lenoir, NC 28645  
Crisis & Office: (704) 758-0888

CAMDEN COUNTY  
(see Pasquotank County)

CARTERET COUNTY  
Carteret County Domestic Violence  
Program  
PO Box 2279  
Morehead City, NC 28557  
Office: (919) 728-3788  
Crisis: (919) 393-6361

CASWELL COUNTY  
Caswell Family Violence  
Prevention Program  
PO Box 639  
Yanceyville, NC 27379  
Crisis & Office: (910) 694-5655

CATAWBA COUNTY  
First Step Domestic Violence  
Program  
17 Hwy 70 SE  
Hickory, NC 28602  
Crisis & Office: (704) 322-1400

CHATHAM COUNTY  
Family Violence & Rape Crisis  
Services  
PO Box 1105  
Pittsboro, NC 27312  
Office: (919) 542-5445  
Crisis: (919) 929-0479



CHEROKEE COUNTY  
REACH, Inc  
PO Box 977  
Murphy, NC 28906  
Crisis & Office: (704) 837-8064

CLAY COUNTY  
(see Cherokee County)

CLEVELAND COUNTY  
Abuse Prevention Council  
PO Box 2589  
Shelby, NC 28151  
Office: (704) 487-9325  
Crisis: (704) 481-0043

COLUMBUS COUNTY  
Families First  
PO Box 1776  
Whiteville, NC 28472  
Office: (910) 642-5996  
Crisis: (910) 641-0444

CRAVEN COUNTY  
Coastal Women's Shelter  
PO Box 13081  
New Bern, NC 28561  
Office: (919) 638-4509  
Crisis: (919) 638-5995

CUMBERLAND COUNTY  
CARE-Family Domestic Violence  
Program  
145 Rowan St., Suite A-1  
Fayetteville, NC 28301  
Crisis & Office: (910) 323-4187

CURRITUCK COUNTY  
(see Pasquotank County)

DARE COUNTY  
Outer Banks Hotline  
PO Box 1417  
Manteo, NC 27954  
Office: (919) 473-5121  
Crisis: (919) 473-3366

DAVIDSON COUNTY  
Family Services Center of Davidson  
County  
PO Box 1231  
Lexington, NC 27293-1231  
Office: (910) 243-1934  
Crisis: (910) 243-1628

DAVIE COUNTY  
Davie County Domestic Violence  
Services  
180 S. Main St., Suite 115  
Mocksville, NC 27028  
Office: (704) 634-3450  
Crisis: (704) 634-4357

DUPLIN COUNTY  
Sarah's Refuge  
PO Box 368  
Warsaw, NC 28398  
Crisis & Office: (910) 293-3206

DURHAM COUNTY  
Orange/Durham Coalition for  
Battered Women  
PO Box 688  
Durham, NC 27702-0688

Office: (919) 688-4015  
Crisis: (919) 688-2372

EDGEcombe COUNTY  
My Sister's House  
PO Box 1702  
Rocky Mount, NC 27802  
Office: (919) 977-2892  
Crisis: (919) 446-2400

FORSYTH COUNTY  
Family Services Shelter  
PO Box 604  
Winston Salem, NC 27102  
Office: (910) 724-3979  
Crisis: (910) 723-8125

FRANKLIN COUNTY  
Safe Space  
102 S. Main St.  
Louisburg, NC 27549  
Office: (919) 497-5444

GASTON COUNTY  
Gaston County DSS Battered  
Spouse Shelter  
PO Box 10  
Gastonia, NC 28053-0010  
Office: (704) 866-3500  
Crisis: (704) 866-3300 or 865-2323

GATES COUNTY  
(see Pasquotank County)

GRAHAM COUNTY  
(see Cherokee County)

GRANVILLE COUNTY  
(see surrounding counties)

GREEN COUNTY  
(see surrounding counties)

GUILFORD COUNTY  
Family Service of High Point  
1401 Long St.  
High Point, NC 27262-2541  
Office: (910) 889-6161  
Crisis: (910) 889-7273  
Shelter: (910) 841-8255

GUILFORD COUNTY  
Family & Children's Services  
301 E. Washington St.  
Greensboro, NC 27401  
Office: (910) 333-6910  
Crisis Line: (910) 274-7316  
or 273-7273  
DV services: (910) 279-8955

HALIFAX COUNTY  
Hannah's Place  
PO Box 1392  
Roanoke Rapids, NC 27870  
Office: (919) 537-2882  
Crisis: (919) 537-2909

HARNETT COUNTY  
SAFE of Harnett County  
PO Box 728  
Lillington, NC 27546  
Crisis & Office: (910) 893-7233

HAYWOOD COUNTY  
REACH of Haywood County  
PO Box 206  
Waynesville, NC 28786  
Crisis & Office: (704) 456-7898

HENDERSON COUNTY  
Mainstay  
125 Main St.  
Hendersonville, NC 28792  
Crisis & Office: (704) 693-3840

HERTFORD COUNTY  
Roanoke-Chowan SAFE  
PO Box 98  
Ahoskie, NC 27910  
Office: (919) 332-4047  
Crisis: (919) 332-1933

HOKE COUNTY  
(see surrounding counties)

HYDE COUNTY  
(see Dare County)

IREDELL COUNTY  
Fifth Street Shelter Ministries  
1400 Fifth St.  
Statesville, NC 28677  
Office: (704) 872-4045  
Crisis: (704) 872-3403

JACKSON COUNTY  
REACH of Jackson County  
PO Box 1828  
Sylva, NC 28779  
Office: (704) 586-8969  
Crisis: (704) 586-2458

JOHNSTON COUNTY  
Harbor  
PO Box 1903  
Smithfield, NC 27577  
Office: (919) 934-0233  
Crisis: (919) 934-6161

JONES COUNTY  
(see Onslow County)

LEE COUNTY  
Haven  
PO Box 3191  
Sanford, NC 27330  
Crisis & Office: (919) 774-8923

LEE COUNTY  
Lee Hispanic Task Force  
223 Carthage St.  
Sanford, NC 27330  
Office: (919) 775-5447  
Crisis: (919) 774-8923

LENOIR COUNTY  
SAFE in Lenoir County  
PO Box 3092  
Kinston, NC 28502-3092  
Crisis & Office: (919) 523-5573

LINCOLN COUNTY  
Lincoln Coalition Against DV  
PO Box 476  
Lincolnton, NC 28092  
Office: (704) 736-8422  
Crisis: (704) 736-1224

MACON COUNTY  
REACH of Macon County  
PO Box 228  
Franklin, NC 28744  
Office: (704) 369-5544  
Crisis: (704) 369-9116

MADISON COUNTY  
Helpmate of Madison County  
PO Box 457  
Marshall, NC 28753  
Office: (704) 649-2027  
Crisis: (704) 649-2446

MARTIN COUNTY  
(see surrounding counties)

McDOWELL COUNTY  
Family Services of McDowell  
County  
PO Box 1572  
Marion, NC 28752  
Office: (704) 652-8538  
Crisis: (704) 652-6150

MECKLENBURG COUNTY  
UFS-The Shelter for Battered  
Women  
PO Box 220312  
Charlotte, NC 28222  
Crisis & Office: (704) 332-2513

MECKLENBURG COUNTY  
UFS-Victim Assistance  
720 E. 4th St.  
Charlotte, NC 28202  
Office: (704) 336-4126  
Crisis: (704) 332-2513

MITCHELL COUNTY  
SAFEPLACE  
PO Box 544  
Spruce Pine, NC 28777  
Crisis & Office: (704) 765-4044

MONTGOMERY COUNTY  
Crisis Council  
PO Box O  
Troy, NC 27371  
Office: (910) 572-3749  
Crisis: 1-800-551-5497

MOORE COUNTY  
Friend to Friend  
PO Box 1508  
Carthage, NC 28387  
Crisis & Office: (910) 947-3333

NASH COUNTY  
(see Edgecombe County)

NEW HANOVER COUNTY  
Domestic Violence Shelter &  
Services  
PO Box 1555  
Wilmington, NC 28402  
Crisis & Office: (910) 343-0703

NORTHAMPTON COUNTY  
(see Halifax County)

**ONslow COUNTY**  
Onslow Women's Center  
PO Box 1622  
Jacksonville, NC 28541  
Crisis & Office: (910) 347-4000

**ORANGE COUNTY**  
Orange County Domestic Violence  
Coordinator  
PO Box 8181  
Hillsborough, NC 27278  
Office: (919) 732-8181

Orange/Durham Coalition for  
Battered Women  
PO Box 688  
Durham, NC 27702-0688  
Office: (919) 688-4015  
Crisis: (919) 929-7122

**PAMLICO COUNTY**  
(see Craven County)

**PASQUOTANK COUNTY**  
Albemarle Hopeline  
PO Box 2064  
Elizabeth City, NC 27906-2064  
Office: (919) 338-5338  
Crisis: (919) 338-3011

**PENDER COUNTY**  
Safe Haven of Pender County  
PO Box 657  
Burgaw, NC 28425  
Crisis & Office: (910) 259-8989

**PERQUIMMANS COUNTY**  
(see Pasquotank County)

**PERSON COUNTY**  
SafeHaven of Person County  
PO Box 624  
Roxboro, NC 27573  
Office: (910) 597-8699  
Crisis: (910) 599-7233

**PITT COUNTY**  
New Directions  
PO Box 8429  
Greenville, NC 27835-8429  
Office: (919) 758-4400  
Crisis: (919) 752-3811

**POLK COUNTY**  
Steps to Hope  
PO Box 518  
Columbus, NC 28722  
Crisis & Office: (704) 894-2340

**RANDOLPH COUNTY**  
Randolph County Family Crisis  
Center  
PO Box 2161  
Asheboro, NC 27204-2161  
Crisis & Office: (910) 629-4159

**RICHMOND COUNTY**  
Rainbow House  
101 Rockingham Road  
Rockingham, NC 28379  
Crisis & Office: (910) 582-1935

**RICHMOND COUNTY**  
Womenfolk Unlimited  
PO Box 26  
Hamlet, NC 28345  
Crisis & Office: (910) 582-4873

**ROBESON COUNTY**  
Southeastern Family Violence  
Center  
PO Box 642  
Lumberton, NC 28359  
Crisis & Office: (910) 739-8622

**ROCKINGHAM COUNTY**  
HELP, Inc.  
PO Box 16  
Wentworth, NC 27375  
Crisis & Office: (910) 342-3331

**ROWAN COUNTY**  
Rape, Child & Family Abuse Crisis  
Council  
131 W. Council St.  
Salisbury, NC 28144  
Office: (704) 636-4718  
Crisis: (704) 636-6142

**RUTHERFORD COUNTY**  
Family Resources of Rutherford  
County  
PO Box 845  
Spindale, NC 28160  
Crisis & Office: (704) 245-8595

**SAMPSON COUNTY**  
U-Care  
PO Box 761  
Clinton, NC 28329  
Office: (910) 596-0931  
Crisis: (910) 596-1345/1346/1347

**SCOTLAND COUNTY**  
(see Robeson County)

**STANLY COUNTY**  
(see Montgomery County)

**STOKES COUNTY**  
Stokes Family Violence & Services  
PO Box 55  
Danbury, NC 27016  
Crisis & Office: (910) 593-9323

**SURRY COUNTY**  
Surry Task Force on Domestic  
Violence  
PO Box 1643  
Mt. Airy, NC 27030  
Crisis & Office: (919) 786-6155

**SWAIN COUNTY**  
Swain/Qualla SAFE  
PO Box 1416  
Br Tyson City, NC 28713  
Office: (704) 488-9038  
Crisis: (704) 488-6809

**TRANSYLVANIA COUNTY**  
SAFE of Transylvania County  
PO Box 2013  
Brevard, NC 28712  
Crisis & Office: (704) 885-7233

**UNION COUNTY**  
Turning Point of Union County  
PO Box 952  
Monroe, NC 28111  
Office: (704) 283-9150  
Crisis: (704) 283-7233

**VANCE COUNTY**  
(see surrounding counties)

**WAKE COUNTY**  
Interact  
600 Wade Ave.  
Raleigh, NC 27605  
Office: (919) 828-7501  
Crisis: (919) 828-7740

**WARREN COUNTY**  
(see surrounding counties)

**WASHINGTON COUNTY**  
(see Beaufort County)

**WATAUGA COUNTY**  
OASIS  
PO Box 1591  
Boone, NC 28607  
Office: (704) 264-1532  
Crisis: (704) 262-5035  
or 800-268-1488

**WAYNE COUNTY**  
The Shelter of Wayne Co  
PO Box 1581  
Goldsboro, NC 27533  
Office: (919) 736-1313  
Crisis: (919) 735-4357

**WILKES COUNTY**  
SAFE, Inc.  
PO Box 445  
Wilkesboro, NC 28697  
Office: (910) 667-7656  
Crisis: (910) 838-7233

**WILSON COUNTY**  
Wesley Shelter  
PO Box 1423  
Wilson, NC 27893  
Office: (919) 291-2344  
Crisis: (919) 237-5156

**WILSON COUNTY**  
OIC  
PO Box 547  
Wilson, NC 27893  
Office: (919) 291-0038  
Crisis: (919) 237-5156

**YADKIN COUNTY**  
Yadkin County Family Domestic  
Violence  
PO Box 1053  
Yadkinville, NC 27055  
Office: (910) 679-2071  
Crisis: (910) 679-2500

**YANCEY COUNTY**  
Family Violence Coalition of  
Yancey County  
PO Box 602  
Burnsville, NC 28714  
Office: (704) 682-5655

## ABUSER TREATMENT PROGRAMS

**ALAMANCE COUNTY**  
Alamance-Caswell Area Program  
1946 Martin St.  
Burlington, NC 27217-2995  
Service Site: 114 S. Maple St., Suite  
D, Graham, NC 27253-2812  
Contact: John Moon/Gary Ander,  
(910) 513-4200

**ALEXANDER COUNTY**  
Family Violence Prevention  
Services  
PO Box 306  
Taylorsville, NC 28681-0306  
Contact: David W. Maupin,  
(704) 632-7364

**BEAUFORT COUNTY**  
Options to Domestic Violence/  
Sexual Assault  
PO Box 1387  
Washington, NC 27889-1387  
Contact: Kim Backs,  
(919) 946-3219

**BUNCOMBE COUNTY**  
Help, Inc.  
34 Wall St., #72  
Asheville, NC 28801-2705  
Contact: Janice C. Wilson,  
(704) 254-2968

Domestic Violence Men's Program  
25 Victoria Road  
Asheville, NC 28801  
Contact: Joel Misler,  
(704) 253-7066

**CALDWELL COUNTY**  
Abuser Treatment Program  
Caldwell Psychological Group  
PO Box 3038  
Lenoir, NC 28645-3038  
Service Site: St. Stephen's Lutheran  
Church, 1406 Harper Ave. NW,  
Lenoir, NC 28645-5486  
Contact: Jerry Cole,  
(704) 757-3302, ext. 312

**CARTERET COUNTY**  
Neuse Family Service Center  
500 N. 35th St.  
Morehead City, NC 28557-3175  
Contact: Judy Terrell,  
(919) 726-0515

**CASWELL COUNTY**  
Caswell Parish, Inc.  
Caswell Family Violence  
Prevention Program  
Family Abuser's Counseling and  
Treatment Program  
PO Box 639  
Yanceyville, NC 27379-0639  
Service Site: 1038 Main St.,  
Yanceyville, NC 27379-8789  
Contact: Mae C. Crumpton,  
(910) 694-5655



**CATAWBA COUNTY**

Family Guidance Center  
First Step Domestic Violence  
Program  
17 US Highway 70 SE  
Hickory, NC 28602-5255  
Contact: Ann C. Peele/  
Sherry Barnes, (704) 322-1400

**CLEVELAND COUNTY**

United Family Services  
822 Churchill Drive  
Shelby, NC 28150-6006  
Service Site: Cleveland County  
Courthouse, 100 Justice Place,  
Shelby, NC 28150-4662  
Contact: Pat St. Charles,  
(704) 487-1278

**CRAVEN COUNTY**

Family Service Center  
MCAS, Cherry Point-  
PSC Box 8022  
Cherry Point, NC 28533-0022  
Contact: Carolyn P. Diaz  
/Lt. Col. Porter, (919) 466-4401

**CUMBERLAND COUNTY**

Cumberland County Department of  
Social Service Family Violence  
Program/CARE Center  
PO Box 2429  
Fayetteville, NC 28302-2429  
Service Site: 145 Rowan St., Suite  
A-1, Fayetteville, NC 28301-4952  
Contact: E.C. Modlin/  
Crystal M. Black, (910) 323-4187

**DAVIDSON COUNTY**

Davidson County Domestic  
Violence Services, Inc.  
PO Box 1231  
Lexington, NC 27293-1231  
Service Sites: 153 W. Center St.,  
Lexington, NC 27292-3009, and  
203 W. 2nd Ave., Lexington, NC  
27292-2307  
Contact: Anna Hayes,  
(910) 243-1934

**DURHAM COUNTY**

Family Counseling Service of  
Durham, Inc.  
CHANGE/Domestic Violence  
Counseling  
3308-F Chapel Hill Blvd.  
Durham, NC 27707-2643  
Contact: John Garmatz,  
(919) 403-3534

**FORSYTH COUNTY**

Family Services, Inc.  
610 Coliseum Drive  
Winston-Salem, NC 27106  
Contact: Michael Turner,  
(910) 722-8173

**FRANKLIN COUNTY**

Area Mental Health, Developmental  
Disabilities and Substance Abuse  
Program of Vance, Warren,  
Granville and Franklin Counties  
The RESOLVE Program  
Franklin County Clinic  
107 Industrial Drive, Suite B  
Louisburg, NC 27549-2307  
Contact: Donald R. Ricketts,  
(919) 496-4111

**GASTON COUNTY**

Family Service Inc. of Gaston  
County  
214 E. Franklin Blvd.  
Gastonia, NC 28052-4106  
Contact: Dewey T. Matherly/  
Lisa W. Reynolds, (704) 864-7704

**GUILFORD COUNTY**

Family Service, Inc.  
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Family Counseling and Enrichment  
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Charlotte, NC 28269-8105  
Service Site: 821 Baxter St., Suite  
312, Charlotte, NC 28202-2713  
Contact: William Tyson/  
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Kevin J. Nybakken, (704) 688-2210

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Memorial Hospital, 615 Ridge  
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Cathy Griffith, (910) 597-8699

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Disabilities & Substance Abuse  
Spouse Abuse and Family  
Education  
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Greenville, NC 27834-7706  
Contact: Stephen K. Creech/  
Connie Haddock, (919) 413-1600

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Service Site: 218 S. Main St.,  
Asheboro, NC 27203-5760  
Contact: Elaine Haigler,  
(910) 629-4159

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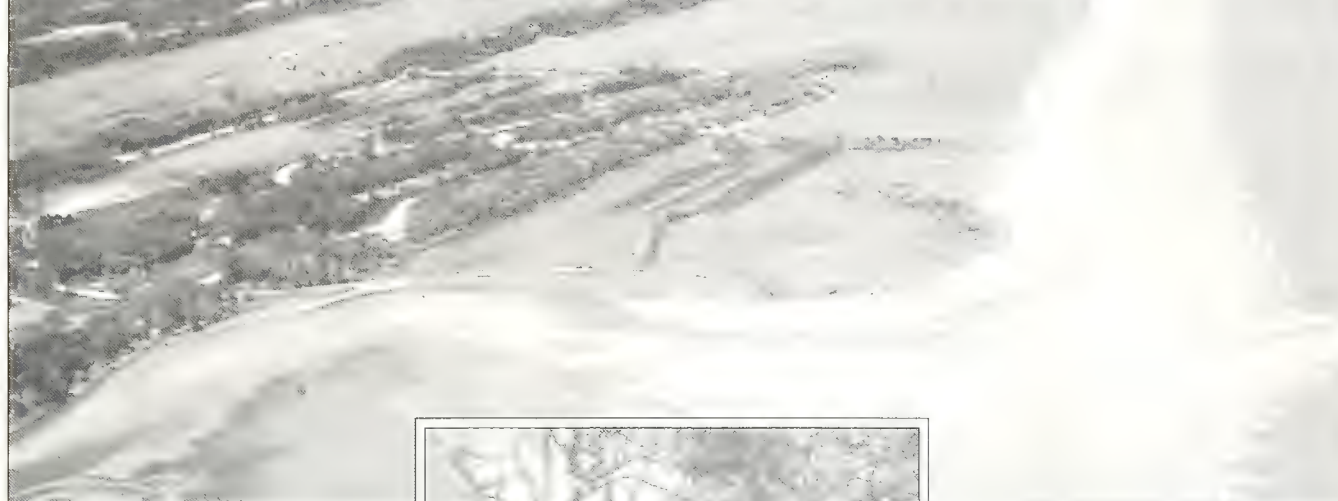
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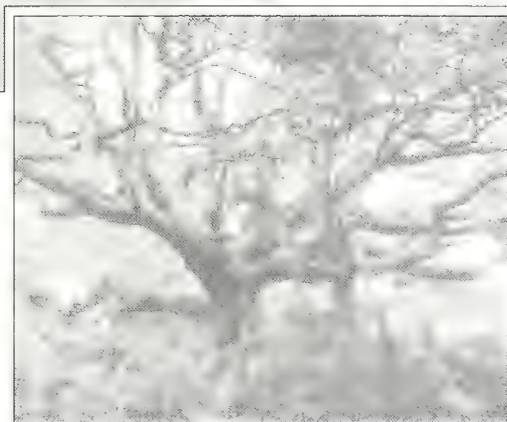
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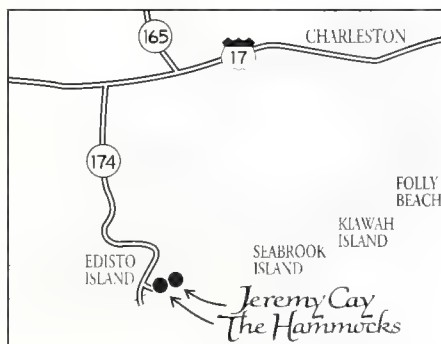
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# Reporting Occupational Illnesses and Injuries in North Carolina

## An Update for Physicians

Bill Jones, MPH, RS, and Susan A. Randolph, MSN, RN, COHN-S

*Surveillance*—the collection, analysis, and dissemination of information on cases of occupational disease, disability, and death—is the cornerstone of efforts to prevent work-related injuries and illnesses.<sup>1</sup> By monitoring incidence and trends, we can define the impact and scope of specific illnesses or injuries; we can identify common causes and factors surrounding those illnesses or injuries; we can improve clinical practice and control workplace hazards.

Physicians who diagnose and treat complaints have access to pertinent information about the patients' occupational situation and what may have contributed to development of the symptomatic conditions. Such information can help us understand the cause of disease or injury, and that understanding can then lead to interventions at the workplace to reduce exposure to health hazards. In November 1994, the *Journal* published the "Mandatory Reporting of Occupational Health Problems in North Carolina."<sup>2</sup> This paper updates the earlier one in light of the three years of data available and the lessons learned.

### Reportable Occupational Illnesses and Injuries in North Carolina

Since January 1, 1994, North Carolina law mandates that certain occupational illnesses and injuries be reported to the Occupational Surveillance Branch, Division of Epidemiology, Department of Environment, Health and Natural Resources (DEHNR). The reportable conditions are:

1. Diagnoses of silicosis or asbestosis
2. Blood lead levels  $\geq 40 \mu\text{g/dL}$  in patients  $\geq 18$  years of age.
3. Serious and preventable injuries caused by tractors, farm

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equipment, or machinery that occur while working on a farm.

Physicians and laboratories providing diagnostic service are required to report these events or related findings. Medical facilities are strongly encouraged to report as well. Reports of blood lead levels for children are made to the Childhood Lead Poisoning Prevention Program in the Division of Environmental Health and are covered separately by state law.

The Occupational Health Surveillance Program uses the comprehensive model known as SENSOR (Sentinel Event Notification Systems for Occupational Risk) that was developed with support from the National Institute for Occupational Safety and Health (NIOSH).<sup>3</sup> The Program gathers data from many sources about the reported condition. Depending on the condition under surveillance, we supplement provider-based reports with information from death certificates, workers' compensation claims, newspaper clippings, medical examiners' data, and others. Table 1, next page, summarizes reports received during 1994-1996.

**Silicosis:** The disease caused by the inhalation and deposition of crystalline silica in the lungs is progressive and incurable. Silicosis has long been recognized as a preventable occupational illness, but it continues to occur. In 1992, there were 255 silicosis-associated deaths in the United States.<sup>4</sup> Several national agencies—NIOSH, Occupational Safety and Health Administration (OSHA), Mine and Safety Health Administration (MSHA) and the American Lung Association—have made the elimination of silicosis and the hazardous workplace conditions that lead to its development a priority item in their agendas.

Reports of silicosis are obtained from physicians, hospitals, death certificates, workers' compensation claims, and the medical surveillance component of the North Carolina Dusty Trades Program. We attempt to confirm each report by obtaining a work history and having chest radiographs reviewed by a NIOSH-certified radiologist. To date (including some 1997 cases) we have 21 confirmed cases in quarry, foundry, mica

**Table 1. Occupational illness and injury reports\* by source, 1994-1996**

Source:	Vital records	Hospital	Workers' comp.	Physician	Laboratory	Other†	Total
Condition:							
Asbestosis	89	340	222	89	n/a	1	741
Elevated blood lead level	n/a	11	n/a	2	1489	n/a	1502
Farm injury/death	3	84	0	6	n/a	164	257
Silicosis	20	14	10	2	n/a	2	48
Total	112	449	232	99	1489	167	2548

\* Duplicate reports excluded.

† Includes reports from Dusty Trades Program, Farm Injury Project, newspaper clippings, or medical examiners' data.

mining and processing, andalusite and pyrophyllite processing and packaging workers, as well as workers involved in the manufacturing of ceramic tile, mirrors, matches, and graphite electrodes. Two cases were exposed at out-of-state worksites; 16 were exposed at worksites enrolled in the Dusty Trades Program. Men predominate (20 of 21 cases) and the average age was 68 years (range 51-88).

**Asbestosis:** This progressive, incurable—but preventable—fibrotic disease of the lung is caused by asbestos exposure. In 1992, 959 deaths were associated with asbestosis.<sup>4</sup> Our surveillance approach for asbestosis is similar to that for silicosis. Reports of the condition are obtained from physicians, hospitals, death certificates, workers' compensation claims, and the medical surveillance component of the North Carolina Dusty Trades Program. From January 1, 1994, to December 31, 1996, we received 741 reports of asbestosis (713 in men). The average age was 61 years, and where race was known, 88% of the reports occurred in whites.

**Elevated adult blood lead levels:** Lead toxicity is a public health concern for both children and adults. Recent research shows that lead levels formerly considered safe are not.<sup>5</sup> Concern centers around the chronic and long-term effects of excessive body lead burdens in adults. One of the US Public Health Service's *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* aims to lower blood lead levels in occupationally exposed adults to below 25 µg/dL.

The mandatory reporting level for adults in North Carolina is 40 µg/dL or greater, but we strongly encourage reporting at 25 µg/dL. Many physicians routinely report the lower blood lead levels and work with our staff to provide early interventions. In one case, a physician became concerned about the work environment and health effects for the patient whose blood lead report was below 40 µg/dL. As a result of specific discussion about the workplace and work practices, the physi-

**Table 2. Elevated blood lead level reports received, 1996**

Blood lead levels (µg/dL whole blood)	Reports	Individuals*	New cases*
25-39†	210	130	80
40-49	215	88	42
50-59	53	36	11
≥60	16	15	10
Totals	494	269	143

\* Individuals = the number of persons for whom reports were received for the time period indicated, excluding multiple reports for the same person (if more than one report is received, highest blood level is represented). New cases = the number of persons entered in the system in the current year who were not in the system in the immediate past year.

† Reporting of lead levels from 25 to 39 µg/dL is voluntary.

cian and patient were able to lower his blood lead level, and a referral to the Department of Labor ensured that proper workplace precautions were being followed. This is an excellent example of how timely reporting and consultation can help in treatment and prevention.

North Carolina and 24 other states participate in a NIOSH surveillance program for adult blood lead levels called ABLES (Adult Blood Lead Epidemiology and Surveillance). In 1996, ABLES received 26,692 reports of blood lead levels ≥25 µg/dL or greater in adults.<sup>6</sup> Table 2 shows NC's blood lead level reports for 1996. The 269 individuals worked in battery manufacturing, plastic colorants manufacturing, valve manufacturing, metal salvage, radiator repair, lead oxide manufacturing, painting, foundry operations, construction, and stained glass manufacturing. The reported individuals were typical of the working population with respect to age; most were men; racial distribution was about even between blacks and whites.

Each person identified by the program receives information about lead exposure, blood lead testing, and how to



minimize exposure. This material complements information the patient receives from the health care provider and at the workplace. We are developing treatment guidelines and ways to reduce exposure to lead at the worksite that should be available in autumn 1997.

**Serious farm injuries:** Most serious and preventable farm injuries are caused farm equipment or farm machinery.<sup>7,8</sup> Injuries are generally caused by tractor roll-overs, tractor run-overs, or limb entanglements in or amputations by farm equipment or machinery. In addition to fatalities, injuries often lead to at least temporary hospitalization, disability, or incapacity to work or go to school. Farm injuries are an important pediatric problem; more than 25,000 US children and adolescents are injured each year and nearly 300 die. Injuries involving machinery (usually agricultural equipment) caused one-third of all deaths in children and almost half in those less than 10 years of age.<sup>9</sup>

Farm injury data are collected from the state medical examiners' database, death certificates, newspaper clippings, physician reports, and others. Fatality data are easiest to collect, but they do not include many who are seriously injured or disabled, nor do they accurately reflect the number of children injured while working on farms. We found that most of the 76 North Carolinians who died of farm injuries were white men aged 60 years and older (range 3-95 years). The youngest, age three, was a second rider on a tractor. Most of the deaths followed severe crushing injuries, head trauma, or multiple injuries from tractor roll-overs or run-overs, and most occurred in July.

The 181 individuals who suffered serious farm injuries were generally white men aged 40-49 (range 2-84 years); the two-year-old was a second rider on a tractor. The injuries were fairly evenly divided between tractors and farm equipment/machinery such as corn pickers, augers, power take-off devices, tobacco harvesters and transplanter, combines, hay balers, and bush hogs. Most injuries occurred in May and June. Types of injuries included fractures, amputations, avulsions, severe lacerations, internal injuries and trauma, and head injuries.

Many farm injuries can be prevented simply by turning the machine off before dismounting, staying clear of moving parts, not removing safety shields from equipment, properly hitching tow chains on a tractor, avoiding operating a tractor near a ditch or on a steep incline, leaving hydraulic equipment in the down position, avoiding loose or tattered clothing that can be caught by moving parts, and prohibiting second riders on tractors or farm equipment. Simple safety precautions can save lives and prevent disabling injuries.

## What We Have Learned

Timely reports are important. This was illustrated by our ability to help treat the patient (and his family) when moderately elevated blood lead levels were reported by an alert physician. Timely reporting also assists with farm injury follow-up, before

details surrounding the injury event fade over time.

We need access to additional sources of data to better define disease and farm injury trends and to identify worksite hazards, especially since many single sources of data are limited. Because each disease has a unique International Classification of Disease (ICD-9) code and because injuries have External Cause of Injury and Poisoning (E) codes, access to hospital discharge data makes sense. Other states have found great public health value in reviewing hospital discharge data.<sup>3</sup> We are exploring the use of trauma registries, emergency medical service providers' reports, and highway patrol reports.

The silicosis and asbestosis cases noted in this paper do not reflect current exposure conditions. There is a 20- to 40-year latency period from exposure to development of disease, and the cases we see today reflect exposure conditions which often no longer exist. The worksite may have closed, may no longer use silica or asbestos, or may have changed work practices to reduce hazardous exposures. But despite knowing the cause of silicosis and asbestosis, despite knowing how to prevent those disorders, cases are still being diagnosed. A good occupational history is essential to diagnosis.

The blood lead level of an adult does not necessarily correlate with the take-home lead risk for children because of factors such as personal hygiene (hand washing) at work, changing work clothes, and avoiding eating or drinking in lead-contaminated areas. Take-home exposure of children has been documented even when the adults' blood lead level was relatively low. Health care providers should discuss work practices and precautions against take-home lead risk whenever a patient indicates that he works with lead and has young children at home.

Information about farm injuries to children is sparse. Many children work on family farms but are not classified as "workers." Our data indicate that one child in the group aged 0-9 died and 10 were seriously injured by tractors or farm equipment/machinery. How could these injuries be prevented? First, health care providers and others concerned about agricultural health and safety must stress the need to prohibit passenger riders on tractors or other farm equipment. Second, providers need to talk with parents (or grandparents) about what constitutes age-appropriate tasks for children on the farm. Such a discussion could prevent needless injury, disability, or death of a child. We would be happy to provide guidance on this important issue.

## How to Report

Physicians must report silicosis, asbestosis, or serious farm injury within 15 working days after diagnosis. Physicians must also report elevated blood lead levels in adults if the performing laboratory does not report (for example, out-of-state laboratories). Because silicosis, asbestosis, elevated adult blood lead levels, and farm injuries are almost always occupationally related, any diagnosis should be reported, regardless of whether the occupational link is known. Reports are made on surveil-

lance forms provided by or approved by the Occupational Surveillance Branch within DEHNR (800/200-7090). Required information includes diagnosis or laboratory result; patient's name, address, telephone number, date of birth, Social Security number, race, gender, and job title; employer's name, address, telephone number, and type of business; and the name, address, and telephone number of the reporting physician, laboratory, or hospital. Reports can be mailed to the Occupational Surveillance Branch or faxed to 919/733-9555. Staff are willing to discuss possible electronic transmission of reports.

Since reporting is required by law, no consent or release is required of the patient before submitting the report form (further medical information or records are obtained only with the patient's consent). Persons who report are immune from civil liability under GS 130A-459. All patient-identifying information is kept confidential and not released without consent. Only aggregate information is provided to the public.

## What Happens After a Case is Reported?

Occupational Surveillance Branch staff follow up on reported cases. They review submitted report forms for completeness, and if additional information is needed, the person who filled out the form is contacted. Educational materials are provided directly to patients with silicosis or elevated blood lead levels. Selected patients are contacted by telephone or mail to gather information about the medical condition and work exposure. If appropriate, an industrial hygienist or occupational health nurse from the Occupational and Environmental Epidemiology Section visits the worksite to assess hazards or exposures. Recommendations on how to reduce exposure to identified hazards are provided to physician, employer and workers. Sometimes the NC Department of Labor is contacted, depending on the extent of the hazard and the advice of physician and patient.

## What Can You Do?

- ◆ Always ask about occupation when treating all patients of working age. Create a work history for all patients suspected of having silicosis or asbestosis.
- ◆ Report cases of silicosis, asbestosis, elevated blood lead levels, or serious farm injuries seen or diagnosed in your practice.
- ◆ Complete all requested information on blood lead requisition slips to ensure proper reporting.
- ◆ Inform colleagues about the reporting law.
- ◆ Develop procedures for reporting the conditions from your practice (through medical records, emergency department nurse, trauma nurse coordinator, office manager, etc).
- ◆ Mail or fax reports to Occupational Surveillance Branch, DEHNR, (fax: 919/733-9555).
- ◆ Encourage patients to cooperate with public health follow-up.
- ◆ Use available educational materials/services:
  - Brochures and fact sheets.
  - Report form.
  - Consultation with staff at the Occupational Surveillance Branch, Occupational and Environmental Epidemiology Section.
  - In-service education about reporting law and procedures.
- ◆ Let us know your ideas for improving reporting.

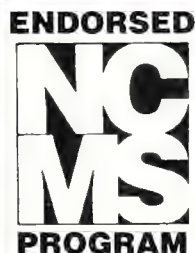
For more information, about the Occupational Health Surveillance Program or conditions under surveillance, please call 800/200-7090 (919/733-1145 in the Raleigh area). You may write to us at Occupational Surveillance Branch, Occupational and Environmental Epidemiology Section, Division of Epidemiology, P.O. Box 29601, Raleigh, NC 27626-0601. For information about childhood blood lead surveillance, call 919/715-5381. □

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# Smoking in Pregnancy in North Carolina

## Maternal Characteristics and Trends, 1988-1994

Paul A. Buescher, PhD

Smoking during pregnancy is a serious threat to the health of mother and baby. Smoking during pregnancy increases the risk of placental and other pregnancy complications.<sup>1</sup> Smoking during and after pregnancy increases the risk of acute and chronic lung and cardiovascular disease in the mother.<sup>2</sup> In addition, many studies link maternal smoking to infant mortality, low birthweight, and other adverse birth outcomes, such as birth defects.<sup>3</sup> One study estimated that elimination of maternal smoking would reduce infant mortality by 10%.<sup>4</sup> Another study of a low-income population found that 31% of low-weight births among non-Hispanic whites and 14% of low-weight births among blacks were attributable to smoking.<sup>5</sup>

Because the negative health effects of smoking during pregnancy are so well documented, most people would agree on the need for effective smoking cessation strategies. We undertook the present study to describe the prevalence of smoking among demographic subgroups of pregnant women in North Carolina and to show how these patterns have changed over time. This information should help in developing and targeting smoking cessation programs.

### Methods

We gathered data about smoking from NC birth certificates from 1988 through 1994. In some cases, the person filling out the birth certificate may consult the maternal medical record to determine whether the mother smoked during pregnancy, but usually this information is obtained directly from the mother while she is in the hospital. Even when the information comes from the medical record, it is usually based on self-report by the mother. The validity of the smoking information on the birth certificate is very important to this study.

In 1988, two questions about smoking during pregnancy

were added to NC live birth and fetal death certificates, in accordance with the national model certificates. These questions ask about "Tobacco use during pregnancy (check yes or no)" and the "Average number cigarettes per day (fill in the number)." A small number of women reporting "yes" to tobacco use may have used only smokeless tobacco, but we use the term "smoking" throughout this report to describe the response to these questions. The questions reflect smoking at any time during pregnancy and thus could still be answered "yes" even if the woman quit smoking before delivery.

In order to assess the validity of self-reported smoking information, we reviewed NC birth certificate data on smoking during pregnancy in the context of other data and studies (see Appendix, page 359). We conclude that the information on smoking derived from NC birth certificates moderately underestimates the true prevalence of smoking among pregnant women, but that the data may reasonably be used to examine differences among demographic subgroups and trends over time.

This study presents descriptive information on the prevalence of smoking during pregnancy among the population of NC residents who gave birth to live infants during the periods 1988-1989 and 1993-1994. Data are categorized according to age of mother (<18, 18-19, 20-24, 25-29, 30-34, ≥35 years old), race of mother (white, black, American Indian, other), marital status of mother (married, not married), education of mother (<9, 9-11, 12, 13-15, ≥16 years of schooling), parity (0, 1-2, or ≥3 previous living children), Medicaid participation (yes, no), and prenatal participation in the WIC (Women, Infants, and Children) program (yes, no). Educational data were examined only for women age 22 and older, who would have had time to complete 16 years of education. All data were derived from NC birth certificates, except for information about Medicaid and WIC participation, which was derived by linking the birth certificates to these health program files.

Among those women who smoked during pregnancy, data on the number of cigarettes smoked (1-9, 10-19, ≥20 cigarettes per day) were examined to determine which groups had the highest percentage of heavy smokers.

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## Results

In 1988-1989, smoking status was recorded on 98% of all certificates; these records indicate that 21.6% of the 195,559 NC mothers giving birth to live infants smoked during pregnancy. By 1993-1994, smoking status was indicated on 99.8% of certificates, and the percentage of mothers who smoked had declined to 17.4% of the 202,391 births.

Smoking during pregnancy was reported on 19.4% of 1993-1994 fetal death certificates. Since the percentages were similar for live births and fetal deaths, and since the number of reported fetal deaths is less than 1% of the number of live births per year, we report here only data for live births.

Table 1, at right, shows the percentages of women who smoked during the two time periods, categorized by characteristics of the mother. There was a consistent decline over time in smoking during pregnancy across all maternal categories. Mothers ages 18-24 had a somewhat higher rate of smoking, but there was little variation across the other age groups. White and American Indian mothers smoked at a much higher rate than women of black or other races. Unmarried women were much more likely to smoke than married women. The prevalence of smoking increased substantially as the number of children in the family increased. During the 1993-1994 time period, women on Medicaid were 2.5 times as likely to smoke as women not on Medicaid. Mothers enrolled in WIC were also much more likely to smoke. The Medicaid and WIC groups overlap substantially and reflect a low-income population (having incomes less than 185% of the federal poverty level in the 1993-1994 period).

There were large differences in smoking by level of education. Almost half the mothers who had dropped out of high school smoked while pregnant, compared to less than 5% of women who had graduated from college. The general pattern of a decrease in smoking rates with an increase in level of education was observed across each racial group.

Certain subgroups had very high prevalence of smoking. During 1993-1994, 51% of unmarried white and 56% of unmarried American Indian women on Medicaid who had three or more previous living children smoked during pregnancy.

Our data reveal substantial differences in the age pattern of smoking between races. In 1993-1994, American Indian mothers had consistently high rates of smoking (about 30%) over all age groups except those  $\geq 35$  years, where the rate was 20%. Mothers of "other races" (mostly Asian) had consistently low rates of smoking (about 5%) for all age groups. Table 2 shows the data by age for white and black mothers. For whites, rates of smoking were highest for teen mothers and then declined as maternal age increased. In contrast, rates of smoking were very low for black teens and increased with age thereafter. The low rate of smoking among black teens may reflect a major change in smoking behavior during the past two decades. A study in Missouri<sup>6</sup> showed that 36% of pregnant black teens smoked in 1978, but only 7% in 1990.

Of the mothers who smoked, approximately one-third reported smoking 1-9 cigarettes per day; one-third, 10-19 per

**Table 1. Percentages of North Carolina mothers who smoked during pregnancy**

	1988-1989	1993-1994
<b>Maternal age</b>		
<18	18.2%	15.2%
18-19	23.9%	19.9%
20-24	25.3%	20.3%
25-29	21.8%	16.6%
30-34	17.2%	15.0%
$\geq 35$	14.7%	14.8%
<b>Maternal race</b>		
White	23.2%	19.3%
Black	17.8%	13.0%
American Indian	35.8%	28.8%
Other	6.2%	4.0%
<b>Marital status</b>		
Married	19.2%	14.5%
Unmarried	28.2%	23.7%
<b>Previous living children</b>		
0	18.0%	14.2%
1-2	23.9%	19.0%
$\geq 3$	30.5%	28.0%
<b>Receiving Medicaid</b>		
Yes	31.1%	25.7%
No	18.1%	10.7%
<b>WIC participant</b>		
Yes	30.0%	24.2%
No	17.9%	12.8%
<b>Years of education*</b>		
<9	38.9%	27.4%
9-11	48.7%	46.5%
12	25.3%	22.3%
13-15	14.7%	12.2%
$\geq 16$	4.9%	3.2%

\* Mothers age 22 and older

**Table 2. Percentage of women who smoked during pregnancy by age and race of mother, 1993-94**

Age of mother	White	Black
<18	27.0%	4.2%
18-19	29.0%	6.7%
20-24	25.1%	11.0%
25-29	16.7%	16.8%
30-34	13.7%	21.0%
$\geq 35$	13.4%	21.0%

day; and one-third,  $\geq 20$  per day (Table 3, next page). Data from 1988-1989 and 1993-1994 show a decrease in the percentage of



heavy smokers. In general, there was little variation in amount smoked according to maternal characteristics, but several differences should be noted. In 1993-1994, about 19% of teen smokers reported smoking  $\geq 20$  cigarettes per day. Nonwhite mothers were less likely to be heavy smokers: about 50% reported smoking 1-9 cigarettes per day, 35% 10-19, and 15%  $\geq 20$ . Nearly half of smokers ages  $\geq 22$  with  $< 9$  years of education reported smoking  $\geq 20$  cigarettes per day, yet about 20% of the smokers with  $\geq 16$  years of education reported smoking  $\geq 20$  cigarettes per day.

## Discussion

Our results show a large variation in the rate of smoking according to maternal characteristics. Only about 5% of Asian women, black teens, and women with a college education smoked during pregnancy. On the other hand, around 50% of women with 9-11 years of education, or unmarried, multiparous, white and American Indian women on Medicaid smoked during pregnancy (and these percentages are likely to be underestimates due to incomplete reporting on the birth certificates). The data presented in this paper certainly indicate target groups for smoking cessation efforts. The good news is the apparent general decline in the rate of smoking during pregnancy from 1988-1989 to 1993-1994.

Self-report is generally the most practical method of collecting information about smoking. Rates of disclosure among self-reported smokers can be improved by using multiple choice questions that allow respondents to choose partially favorable answers, such as "I smoke now, but I have cut down since I found out I was pregnant."<sup>1,7</sup> In one prenatal clinic in North Carolina, changing the questions on smoking during pregnancy from a "yes/no" to a less-direct format markedly increased the disclosure of smoking by pregnant women (personal communication from Joann Halloran, Kaiser Foundation Health Plan, Charlotte NC, April 4, 1996).

Even when the best smoking cessation programs are available, and despite knowing of the increased health risks to themselves and to their developing baby, the vast majority of women continue to smoke throughout pregnancy.<sup>7</sup> For those who do quit, the relapse rate after delivery is very high.<sup>8</sup> Prager found that the prevalence of drinking alcohol is much higher than the prevalence of smoking among women of reproductive age, but women who become pregnant are much more likely to

**Table 3. Comparison of women smokers by cigarettes smoked per day during pregnancy, 1988-1989 and 1993-1994.**

	Cigarettes per day		
	1-9	10-19	$\geq 20$
1988-1989	25.8%	38.8%	35.3%
1993-1994	30.5%	39.8%	29.7%

stop drinking than to stop smoking.<sup>9</sup> Giving up nicotine, a daily habit with strong psychological and physiological dependency, is probably more difficult than giving up light or moderate alcohol consumption. Some pregnant and postpartum women use cigarettes to limit weight gain, relieve stress, or cope with depression.<sup>7</sup> Women may also believe that if they smoke and have a smaller baby, they will have an easier birth.<sup>10</sup>

We need to target pregnant women for smoking cessation because quitting will benefit both mother and infant. Since there is a dose-response relationship between smoking and low birthweight, even a reduction in the amount smoked can be considered a partial success. Women may be more receptive to changing smoking behavior during pregnancy<sup>1,8</sup> because they want to do what is best for the baby or because smoking may cause nausea.<sup>10</sup>

Health education methods tailored to the pregnant smoker are more effective in changing smoking behavior than standard clinic information.<sup>11</sup> WIC clinics are a good place for smoking cessation programs, given the high rate of smoking among prenatal WIC participants (Table 1). One study showed that programs to stop prenatal smoking were well accepted by WIC clients.<sup>7</sup> Smoking policies, such as smoke-free worksites, may also help pregnant women quit smoking.<sup>12</sup>

Clark<sup>10</sup> claims that just knowing about the potential effects of smoking is usually not sufficient to make a pregnant woman quit. We must go beyond traditional health education approaches to develop new smoking cessation methods. This is especially true for women of lower socioeconomic status who need highly supportive and individual education programs that take into account the social situation of the smoker.<sup>7,10</sup> Health care providers need to keep in mind that smoking may be linked to physical abuse<sup>13</sup> or other aspects of the home environment. Even a moderately effective program can pay for itself, given the ability of smoking cessation to prevent low birthweight babies.<sup>14</sup> □

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## Appendix. Validity of Self-Reported Smoking Data from North Carolina Birth Certificates

A 1989 study of the quality of NC birth certificate data compared information on a sample of birth certificates with the corresponding maternal hospital medical records.<sup>15</sup> The correspondence was poor for some of the birth certificate data items, but that for tobacco use was fairly good. In 86% of cases where tobacco use was indicated in the medical record it was correctly identified by the birth certificate (sensitivity of 86%). A similar 1989 study in Tennessee found a sensitivity of 75%.<sup>16</sup> It should be noted, however, that the medical record itself may underestimate smoking prevalence, since it, too, is often based on self-report by the mother.

In 1990, smoking during pregnancy was reported on 21% of the NC live birth certificates. Some studies<sup>6,8</sup> have noted a decline in the percentage of women smoking during pregnancy during the 1970s and 1980s, but current figures from the US are consistent with the prevalence indicated by the NC birth certificates. The 1990 National Health Interview Survey showed that 18% of pregnant woman smoked during pregnancy.<sup>7</sup> Birth certificate data from 43 states indicated that, in 1989, 20% of

mothers reported smoking during pregnancy.<sup>17</sup> Other survey data show that 18% of pregnant women reported smoking in 1989,<sup>18</sup> but birth certificate data from Missouri for 1989 showed a somewhat higher rate of 26%.<sup>19</sup>

The information summarized above indicates that the prevalence data from NC birth certificates is generally consistent with other self-reported data. A broader question is: how accurate are self-reported smoking data? Some studies have compared self-reported smoking with objective measures such as serum or urine cotinine levels. One study of the general population found only a slightly lower self-reported level of smoking compared to cotinine measures and concluded that misclassification of cigarette smoking by self-report was low in a young adult population.<sup>20</sup> Another general population study found a higher level of underestimation: Self-reported smoking prevalence was four to six percentage points lower than cotinine measurements.<sup>21</sup> A review of 26 published reports found that self-reports of smoking are generally accurate compared to biochemical measures.<sup>22</sup> Kleinman concluded that self-reports in population



surveys provide reasonable estimates of smoking prevalence, though there may be serious underreporting in evaluations of smoking cessation programs.<sup>8</sup>

A study of urine cotinine levels in pregnant NC women from December 1992-January 1993 indicated that 15% of the women had used tobacco within the previous 48-72 hours.<sup>23</sup> This is a very conservative estimate of smoking during pregnancy since the time window for detection was short, and since women who received no prenatal care (and who are at high risk for substance use in pregnancy) were not included in the sample.

Our 1988 and 1989 data indicate that the median number of cigarettes smoked per day by women who smoked during pregnancy was 11. We currently have no data to directly validate the smoking amounts reported on the birth certificates, but the high correlation of number of cigarettes smoked with percentage of low birthweight babies provides indirect evidence of general validity. A previous NC study showed a steady increase in the percentage of low birthweight for both white and black mothers as the number of cigarettes smoked per day increased from 0 to 1-9 to  $\geq 10$ .<sup>24</sup> It is noteworthy that women whose smoking status (or number of cigarettes smoked per day) was unknown (about 2% of the births) had the highest percentage low birthweight. This finding supports other studies showing the high risk status of women whose data are missing or unreported on vital records.<sup>25</sup> □

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# Prevalence of High Cholesterol, High Blood Pressure, and Smoking Among Elementary Schoolchildren in North Carolina

Chyrisse B. Bradley, MA, Joanne S. Harrell, RN, PhD, Robert G. McMurray, PhD, Shrikant I. Bangdiwala, PhD, Annette C. Frauman, RN, PhD, and Julie P. Webb, MS

North Carolina (NC) ranks 11th among the states in population. A large portion of the state sits in the heart disease and stroke belt of the United States.<sup>1,2</sup> NC has higher than average incidence of deaths related to cardiovascular disease (CVD) and ranks 15th in the nation in CVD mortality. In addition, NC is third in age-adjusted death rate due to stroke.<sup>1</sup>

Atherosclerosis is a major contributor to CVD and stroke. Numerous studies have documented how risk factors influence the development of atherosclerosis in adults.<sup>3,4</sup> Modifiable risk factors include high blood cholesterol levels, high blood pressure, tobacco smoking, and physical inactivity. The Muscatine, Bogalusa, Know Your Body (KYB), and Child and Adolescent Trial for Cardiovascular Health (CATCH) have examined and tracked these risk factors in children (Table 1, next page).<sup>5-12</sup> Recent research documents the link between the presence of these factors and the development of disease later in life. Heart-healthy lifestyles need to begin at early ages.<sup>13-16</sup>

Table 1 shows cholesterol and blood pressure findings in children and adolescents from several large-scale community and multisite studies. The results of these studies are typically generalized to all children of similar age and sex, but since CATCH found regional variation in some risk variables,<sup>9</sup> region-specific data need to be used in assessing CVD risk factors in children. To date, limited prevalence information has been reported on NC children. Data on obesity, fitness, and physical activity in North Carolina children have been reported elsewhere.<sup>17-19</sup> In this paper we assess the prevalence of high cholesterol, hypertension, and smoking, the primary modifiable risk factors for CVD, as well as some information about

family history of CVD in third- and fourth-graders in North Carolina.

## Methods

The Cardiovascular Health In Children (CHIC) study was conducted in 21 schools in 12 counties across North Carolina (Figure 1, next page). The schools were randomly selected from 33 that agreed to participate and met study criteria for being either rural or urban.<sup>21</sup> Half of the selected schools were rural and half, urban. Schools were evenly distributed across the three major geographic regions of the state: mountains, piedmont and coastal plain. Criteria for inclusion as a study subject were: written permission from a parent and assent from the child; enrollment in the third or fourth grade; ability to read and write English; lack of mental or physical handicap identifiable by parents; absence of chronic illness (diabetes, moderate or severe asthma) that might affect the measured variables; ability to participate in an exercise program; and at least one relative available to respond to a parental questionnaire.

Cholesterol was measured with a Boehringer Mannheim Diagnostics (Indianapolis, IN) Reflotron®. Internal and external quality control standards were established and maintained throughout data collection (overall coefficient of variation = 2.6%). Each child was seated quietly for at least five minutes before having a fingerstick blood sample drawn. Results were obtained within three minutes and any child whose values fell outside the approximate fifth and 95th percentiles for age (<100

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**Table 1. Prevalence of CVD risk factors in children and adolescents from community-based US studies**

Study: Location	Muscataine, IA <sup>7,20</sup>	Muscataine, IA <sup>8</sup>	Bogalusa, LA <sup>6,20</sup>	K-Y-B, NY <sup>11</sup>	CATCH: MN, TX, LA, CA <sup>9</sup>
Date collected	1971-73	1981-84	1973	1976	1991
Number of subjects	4829	443	309	2694	5106
Age (years)	6-18	13-17	8	11-14	8-10
Height (cm) mean $\pm$ SD	n/r		130.2 $\pm$ 5.8	n/r	*133
Weight (kg) mean $\pm$ SD	n/r		28.5 $\pm$ 6.2	n/r	n/r
Cholesterol (mg/dL)					
Mean $\pm$ SD	182 $\pm$ 29		167.4 $\pm$ 30.6	157.7 $\pm$ 25.1	170
% High	†24%		*†15%	†5.5%	†13.3%
Blood pressure (mmHg):					
SBP: mean $\pm$ SD	†107 $\pm$ 11		96.6 $\pm$ 10.2	108 $\pm$ 11	*106
DBP: mean $\pm$ SD	†72 $\pm$ 8.5		58.8 $\pm$ 7.2	66 $\pm$ 10	*54
% High	‡§SBP: 0.5% DBP: 1.2%		∞5% (age 9)	§2.3%	n/r
Smoking		¶3% (age 13), 10% EXP1	n/r	**8%, 30% EXP2	n/r

n/r = not reported

\* Approximated from graphical illustration of data

† High cholesterol  $\geq$  200 mg/dL

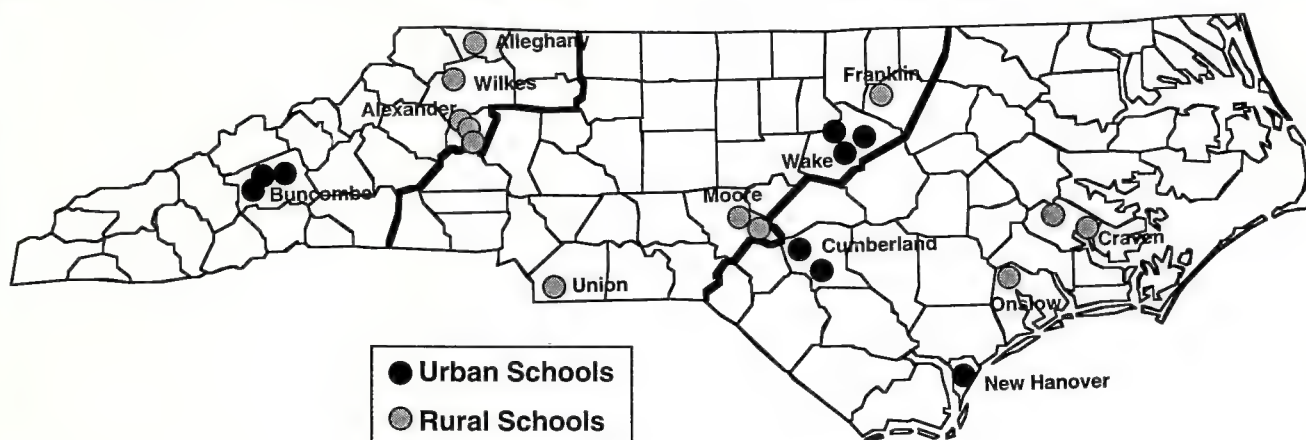
‡ For ages 6-9 years only

§ High BP  $\geq$ 140 and/or  $\geq$  90 mmHg

∞ High BP  $>$  111/72 mmHg

¶ Smoker = at least weekly and  $\geq$  5 cigarettes per episode, EXP1=smoke less than once a month

\*\* Smoker= $\geq$  1 cigarette in past week, EXP2=experimental smoker (not defined)



**Fig 1:** Counties participating in the Cardiovascular Health in Children Study

mg/dL or  $>$ 200 mg/dL) were asked to provide a second sample. If two measurements were made, the mean was used for reporting. High cholesterol in children was defined as a value equal to or greater than 200 mg/dL.<sup>22</sup>

Blood pressure (BP) was measured with mercury sphygmomanometers (W.A. Baum Co., Copiague, NY) fitted with

appropriately sized cuffs. Children were seated for at least five minutes prior and then the first, fourth, and fifth Korotkoff phases of blood pressure were measured twice; the means of the duplicate readings were used for analyses. Fourth Korotkoff sound was used as diastolic pressure.<sup>23</sup> Hypertension was defined as either systolic or diastolic pressure  $\geq$ 122/78 mmHg



(for children ages six to nine) and 126/82 mmHg (for children ages 10 to 12) as established by the Second Task Force on Blood Pressure control in Children.<sup>23</sup>

Smoking information was obtained from an investigator-designed, self-report questionnaire. Truthful answers were encouraged by assuring students that neither parents, teachers, nor school administrators had access to questionnaire responses. Children were asked if they had ever smoked a whole cigarette and if they smoked now. Since the children were so young, we defined smoking risk as any cigarette experimentation.

Family history of CVD was obtained from self-administered parental questionnaires. Parents were asked about their health habits and any personal history of heart attack, coronary artery bypass surgery, angioplasty, chest pain, stroke, high blood pressure, or diabetes. A positive family history of CVD was defined as having a natural parent with at least one of the following: heart attack, anginal chest pain, coronary artery bypass surgery or angioplasty. Race of the child was specified by the parent(s).

## Procedure

We obtained permission to conduct the study from county school superintendents and from each school principal. Parents were sent packets explaining the study and asking for permission to include their child. The packets also contained questionnaires for the parents to complete.

Those children who had obtained parental consent were taken to school libraries, auditoriums, or empty classrooms to sign an assent form and complete questionnaires and physiologic testing. Questionnaires were administered by trained research assistants to small groups of children. Physiologic testing was done by the same research assistants on eight to 12 children at a time. When students had completed physiologic testing they were given a small prize (a jump rope or Frisbee) and sent back to their classrooms. Study staff sent results of the testing and a brief discussion of the meaning of the results to each child's parents.

All data were double entered into a SAS database and the data analyzed using SAS programs. Simple univariate statistics

were calculated on the variables of interest and chi-squared tests were used to examine differences between gender and race groups.

## Results

We had complete baseline data on 2207 children (50.6% female) with a mean age ( $\pm$ Standard Deviation) of  $8.9 \pm 0.8$  years. This represents nearly 60% of all third- and fourth-graders in participating schools. Of the participants, 76.3% were of Caucasian, 19.4% of African-American, and 4.3% of other racial backgrounds, reflecting the racial distribution in North Carolina according to 1990 Census information.<sup>2</sup>

Parental information was collected from 2115 biological families (1540 with responses from both parents; 506 with response only from the mother; 69 with response only from the father). Mean age of the mothers was  $34.4 \pm 5.0$  years and that of the fathers was  $37.4 \pm 5.5$  years. The natural parents ranged in age from 23 to 61 years. Data on family history were included only if obtained from a natural parent.

Table 2, below, presents means and standard deviations by gender and race for age, height, weight, body mass index (BMI = weight in kg  $\div$  [height in meters]<sup>2</sup>), systolic and diastolic blood pressures, and serum cholesterol concentration. African-American children tended to be taller and heavier, had higher BMI, higher mean systolic and diastolic blood pressures, and higher mean total cholesterol than children of other races. Overall, 12.6% of children (12% of females and 13.1% of males) had high cholesterol ( $>200$  mg/dL) (Table 3). There was a significant racial difference in distribution of high cholesterol: 18.7% of African-American subjects had cholesterol concentrations  $>200$  mg/dL, but only 11.0% of Caucasian and 11.8% of other races ( $p=.001$ ).

Hypertension (that is, blood pressures exceeding the 95th percentile of systolic or diastolic pressure for age as defined by Horan et al<sup>23</sup>) was noted in 12.0% of subjects and severe hypertension (blood pressures exceeding the 99th percentile) was found in 3.2% of subjects (Table 3, next page). Systolic hypertension was found in 4.0% of the children, more often in boys (5.0%) than girls (3.1%) ( $p<.02$ ). Diastolic hypertension

**Table 2. Means and standard deviations of cholesterol, blood pressure, and BMI in children in the CHIC study**

Variable	Overall	By Gender		By Race		
		Males	Females	African-American	Caucasian	Other
	n=2207	n=1090	n=1117	n=428	n=1685	n=94
Age (years)	$8.9 \pm 0.8$	$8.9 \pm 0.8$	$8.8 \pm 0.7$	$9.0 \pm 0.8$	$8.8 \pm 0.7$	$8.9 \pm 0.7$
Cholesterol (mg/dL)	$165.6 \pm 29.6$	$165.4 \pm 30.5$	$165.9 \pm 28.8$	$171.3 \pm 31.9$	$164.2 \pm 28.9$	$166.1 \pm 29.5$
Systolic BP (mmHg)	$104.2 \pm 10.1$	$104.5 \pm 10.1$	$103.9 \pm 10.0$	$105.4 \pm 10.4$	$103.9 \pm 10.1$	$103.2 \pm 8.8$
Diastolic BP (mmHg)	$68.1 \pm 8.9$	$68.3 \pm 9.0$	$67.9 \pm 8.9$	$69.4 \pm 9.6$	$67.8 \pm 8.7$	$67.2 \pm 8.6$
Height (cm)	$135.9 \pm 7.2$	$136.3 \pm 7.0$	$135.5 \pm 7.5$	$138.4 \pm 7.0$	$135.4 \pm 7.0$	$134.2 \pm 8.3$
Weight (kg)	$34.4 \pm 9.0$	$34.5 \pm 8.8$	$34.3 \pm 9.3$	$36.8 \pm 9.9$	$33.8 \pm 8.7$	$33.2 \pm 8.3$
BMI (kg/m <sup>2</sup> )	$18.4 \pm 3.5$	$18.4 \pm 3.4$	$18.4 \pm 3.6$	$19.0 \pm 3.7$	$18.3 \pm 3.5$	$18.3 \pm 3.5$

**Table 3. Prevalence of CVD risk factors in children in the CHIC study**

Risk Factor	Overall n=2207	By Gender		By Race		
		Males n=1090	Females n=1117	African-American n=428	Caucasian n=1685	Other n=94
High cholesterol ( $\geq 200$ mg/dL)	12.6%	13.1%	12.0%	18.7%	11.0%	11.8%
Nonsevere systolic hypertension (mmHg) (122-129, 6-9 y.; 126-133, 10-12 y.)	3.0%	4.1%	2.0%	3.7%	2.8%	3.2%
Severe systolic hypertension (mmHg) ( $\geq 130$ , 6-9 y.; $\geq 134$ , 10-12 y.)	1.0%	0.9%	1.1%	1.4%	0.9%	0.0%
*total systolic hypertension	4.0%	5.0%	3.1%	5.1%	3.7%	3.2%
Nonsevere diastolic hypertension (mmHg) (78-85, 6-9 y.; 82-89, 10-12 y.)	9.1%	8.9%	9.3%	11.7%	8.5%	8.5%
Severe diastolic hypertension (mmHg) ( $\geq 86$ , 6-9 y.; $\geq 90$ , 10-12 y.)	2.6%	2.8%	2.4%	3.3%	2.5%	1.1%
*total diastolic hypertension	11.7%	11.7%	11.7%	15.0%	11.0%	9.6%
Smoking experimentation	3.9%	5.5%	2.3%	4.4%	3.7%	3.2%

\*Total = nonsevere + severe hypertension

was present in 11.7% of subjects; there were no gender differences in the prevalence of diastolic hypertension or severe hypertension. African-American subjects tended to have higher prevalences of both nonsevere and severe systolic and diastolic hypertension, but only that for diastolic hypertension approached statistical significance ( $p = .059$ ).

Prevalence of self-reported current smoking by the children was 0.7% overall, but only 0.4% of girls reported current smoking compared to 1.1% of boys. Racial distribution showed that 0.8% of Caucasian children and 0.7% of African-American children reported current smoking, but no children from other racial groups. Experimental smoking was reported by 3.9% of the children and was more common in boys (5.5%) than in girls (2.3%). Table 3 shows further data for experimental smoking.

The mean age of the 3655 natural parents was only  $35.7 \pm 5.4$  years, but in 9.8% of families there was a personal history of CVD; 5.8% of mothers and 6.9% of fathers reported having at least one defining condition for CVD (Table 4, above). In addition, 16.3% of the natural parents (9.3% of mothers and 11.0% of fathers) reported having hypertension, and 3.3% reported diabetes (2.1% of mothers and 1.8% of fathers). In 27.5% of families, at least one parent gave a self-report of high cholesterol and in 47.1% at least one parent smoked.

**Table 4. Prevalence of self-reported CVD in natural parents of participating children**

		Either parent n=3635	Mothers n=2033	Fathers n=1602
Disease evidence:	Any CVD	9.8%	5.8%	6.9%
	Angina	9.2%	5.7%	6.1%
	Angioplasty	0.2%	0.0%	0.2%
	Bypass surgery	1.1%	0.2%	1.1%
	Heart attack	0.4%	0.1%	0.4%

## Discussion

Our data show the mean weight of NC children to be at or above the 90th percentile and the mean height at the 75th percentile for age and gender compared to standard growth curves.<sup>24</sup> Data for mean height and weight from the Bogalusa studies show that enrolled children were typically at the 75th-80th percentile, even in the early 1970s. Since it would be very unusual for the bulk of a population to be at the 95th percentile of any measure, our results suggests that the growth curves in general use are outdated and need to be revised.

NC children have more hypercholesterolemia than expected. Since a cholesterol concentration of 200 mg/dL defines the 95th percentile for children in this age group,<sup>22</sup> we expected that about 5% of our subjects would have values higher than 200 mg/dL. Instead, we found 12.6% of subjects in this range. Cholesterol levels were similar in boys and girls, but African-



American subjects had higher mean levels and a higher proportion at risk, consistent with other studies of racially mixed populations.<sup>5,10</sup> Other researchers have suggested that high levels of high-density lipoprotein (HDL) cholesterol elevate the total cholesterol of African-American participants.<sup>5,10</sup> Our study was limited to measurement of only total cholesterol, so we cannot determine whether the elevated total value was due to higher HDL levels.

The mean cholesterol of our study group was similar to that found in eight-year-olds in Bogalusa,<sup>6</sup> but the prevalence of high cholesterol in our subjects (12.6%) was somewhat lower than the ~15% found in Bogalusa.<sup>20</sup> The mean cholesterol found in our study is also somewhat lower than that found by Muscatine researchers (166 vs 182 mg/dL) and the prevalence of high cholesterol is considerably lower (12.6% vs 24%).<sup>7</sup> However, the Muscatine data were obtained from subjects aged six to 18 years. When only the eight- to 10-year-olds are examined, mean cholesterol is approximately 166±29 mg/dL, and the percentage of subjects with cholesterol ≥200 mg/dL is about 14%.<sup>20</sup>

The Muscatine population was predominantly white (96%), but the populations of the present (CHIC) and Bogalusa (40% African-American) studies were racially mixed groups. This would lead us to expect higher mean and more prevalent high cholesterol in Bogalusa and CHIC, but this was not what we saw. The KYB study population<sup>11</sup> (11% African-American, 15% other) found a lower mean cholesterol and prevalence of high cholesterol than CHIC, but the subjects in that study were adolescent (aged 11 to 14 years) and cholesterol is known to drop around puberty.<sup>10</sup> The cholesterol data from CHIC are very similar to those of the CATCH studies from 1991.<sup>9</sup> The two decades separating the Muscatine, Bogalusa, and KYB studies from CHIC and CATCH make it possible that societal and social factors could have intervened. Considering the similarity of Bogalusa data to CHIC, it is more likely that the differences merely reflect regional variation and thus indicate the need for clinicians and researchers to use region-specific and racially-specific norms.

NC children had more hypertension than expected. Criteria for diagnosing hypertension typically suggest that treatment begin when pressures reach the 95th percentile for specific age groups.<sup>23</sup> The data used to create these norms did not include NC subjects, but when we applied these norms to NC children, we found that approximately 11% of children (rather than the anticipated 5%) had blood pressures higher than the national 95th percentile and could be considered hypertensive. The mean blood pressures found in the Muscatine and KYB studies (107/72 mmHg and 108/66 mmHg) were similar to CHIC (104/68 mmHg), but their reported prevalence of "hypertension" was lower (1.2% and 2.3% vs 8.8%) because they used adult criteria (140/90 mmHg) for diagnosing hypertension. Bogalusa's criteria for diagnosis were closer to those set down by the Second Task Force<sup>23</sup> and therefore to CHIC's, but the mean blood pressures and prevalence of hypertension (5% vs 12%) were much lower.

We found that more males than females had hypertension

and that African-Americans had the highest proportion of both systolic and diastolic hypertension. New recommendations suggest that accounting for height is essential in diagnosing hypertension.<sup>25</sup> Since the African-American subjects tended to be taller and heavier, it is possible that the prevalence of hypertension would decrease if new guidelines were applied. That determination is beyond the scope of this paper but will be examined in the future. As with cholesterol, differences in BP may be related to the different decade of data collection. Children in the 1990s (CHIC and CATCH) are taller and heavier than in past decades, so higher blood pressures would be expected. In addition, CHIC had a high proportion of obese subjects, which may influence blood pressure.<sup>19</sup> As the CATCH group suggests, there may be significant regional variation in physical measures.<sup>9</sup>

Assessment of smoking behavior has not been a routine part of CVD risk factor studies in young children, so data comparable to CHIC are difficult to find. The prevalence of smoking in elementary schoolchildren is low, but it rises as children age. Experimenting with tobacco products at an early age is linked to habitual smoking as a teen and adult.<sup>26-28</sup> Brownson et al<sup>26</sup> found that 23% of male and 14% of female fifth-graders in Missouri had tried cigarettes but only 4% of males and 2% of females reported regular use of tobacco. The National Center for Health Statistics indicates that most tobacco experimentation begins between the ages of 10 and 12.<sup>27</sup> In the mid-1980s, about 15% of 13-year-olds in NC smoked regularly, but 51.4% had experimented with cigarettes.<sup>28</sup> The data presented in this paper represent the first report of smoking in younger North Carolina students.

Only two of the other community-based studies investigated smoking behaviors in children. Muscatine<sup>8</sup> reported that 10% of eighth-graders (age 13) had experimented with cigarettes in the early 1980s and 3% were regular smokers. In the 1970s, KYB investigators reported<sup>12</sup> that 30% of 11- to 14-year-olds had experimented with cigarettes and 8% were regular smokers. We found that 3.9% of third- and fourth-graders were experimental smokers and 0.7% were current smokers. Significantly more boys than girls were current smokers (1.1% vs 0.4%), but there was no gender difference in experimental smoking. Further comparisons are difficult due to variability in the definitions of smoker and experimental smoker. The most logical conclusion at present is that any smoking by children is unwanted and dangerous because of the likelihood that it will lead to habitual smoking (and its host of chronic illnesses and health problems) later. Efforts to reduce smoking and experimentation with tobacco are important and should begin in elementary school rather than wait until the middle grades.

One of the major problems with generalizing our data to NC as a whole is the fact that our subjects had to have permission to participate. Families with CVD risk factors may have been more likely to consent. Parental information was not examined by the age of the parent, but even if those parents self-reporting CVD are the oldest (one age 61, all others younger than age 55), they are still experiencing premature CVD.



Therefore, it is possible that children's participation was prompted by the existence of parental CVD or CVD risk factors (16.3% of these young parents had hypertension, 27.5% had high cholesterol, and 9.8% had CVD). However, since the mean values for BP and cholesterol in CHIC children were similar to those in other community-based studies, family history may not have been a major influence for inclusion in this study.

## Conclusions

The prevalence of high cholesterol, high blood pressure, and tobacco smoking is higher in NC children than expected.

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# Diabetes Mellitus

## Using a Database to Implement a Systematic Management Program

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Today's climate of health care reform and managed care makes it clear that health care professionals must develop ways to maximize patient satisfaction and quality of care while minimizing costs. Diabetes mellitus provides as an excellent model for this process because it is a costly, chronic disease in which preventive measures and coordinated care can be expected to decrease long-term complications, reduce hospitalizations, delay disability, and prevent death—thereby improving health and reducing future costs.

The Diabetes Control and Complications Trial (DCCT), a 10-year, multicenter randomized clinical trial concluded in June 1993, showed that intensive control of blood glucose led to a 76% decrease in retinopathy, a 56% decrease in nephropathy, and a 60% decrease in neuropathy. The DCCT studied people with Type 1 (insulin-dependent) diabetes mellitus, but most scientists believe that the results will be applicable to the patients with Type 2 (noninsulin-dependent) diabetes as well.<sup>1</sup> The DCCT noted that patient education was integral to improved health outcomes, and demonstrated the cost-effectiveness of integrating diabetes care and education.<sup>2</sup>

In North Carolina, diabetes mellitus is a major public health and clinical concern. Approximately 290,000 North Carolina residents (6% of the population) have diabetes,<sup>3</sup> but the numbers increase in older individuals and in nonwhite races. Every year there are more than 66,000 diabetes-related hospitalizations in North Carolina. In 1992, the total cost of diabetes care in North Carolina was estimated at \$1.4 billion;<sup>3</sup> approximately 48% of the total is ascribed to costs of inpatient and outpatient care; the remaining 52% represents lost wages.<sup>4</sup>

### Defining a Diabetes Care Program

In 1993, individuals involved in diabetes care met to lay the

foundation of a statewide effort to reduce the burden of this chronic disease in North Carolina.<sup>4</sup> The major recommendation issuing from this meeting was that the health care community make diabetes self-management education programs available to North Carolinians with diabetes and their families. In this article we describe an interdisciplinary approach to providing continuity of care for patients with diabetes. We developed a community-wide collaborative relationship of health care providers to encourage consistent care of all patients with diabetes. The ultimate purpose of such a community program is to help (enable) patients to control their own diabetes, thereby reducing their chance of developing its complications. Our model emphasizes surveillance and prevention.

In November 1994, a primary care physician, Douglas G. Kelling, created a task force consisting of members of his office staff, inpatient and outpatient hospital diabetes educators, key hospital nurses and dietitians, home care agency directors and other nurses, representatives of a hospital Information Systems department, and representatives of insulin and blood glucose monitoring equipment companies. Physicians specializing in endocrinology, nephrology, ophthalmology, neurology, podiatry, and infectious diseases collaborated as well in the joint effort to develop the program outlined in this article.

### Education for Self-Care

In an effort to decrease hospital length of stay, inpatient diabetes education was changed to focus on self-management "survival skills." Teaching was begun by the staff nurse with further, in-depth teaching carried out by home care nurses or in the hospital's outpatient Diabetes Self-Care Program after discharge. All diabetic patients of Dr. Kelling who are admitted to the hospital receive diabetes education, even if the admission is

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not directly caused by diabetes. Hospitalized patients with new-onset diabetes are seen by a nurse diabetes educator. An inpatient dietitian sees all patients referred for diabetes nutrition therapy.

The hospital's Diabetes Self-Care Program is a satellite of the Duke University Adult Diabetes Program. It is located in an Endocrinology Clinic, which is staffed one to three days a week by Duke and community endocrinologists. Collaborative consultation of specialists with the primary care physicians is the key to informed relationships between physicians, and better care for patients.<sup>5</sup>

The self-care program is taught by two diabetes nurse educators and a registered dietitian. The program consists of three to six hours of individualized counseling about self-care skills, nutrition, medication administration, blood glucose monitoring, and the response to potential emergencies (diabetic ketosis, hypoglycemia, acute illness). A three-day comprehensive program involving all aspects of diabetes self-management is also available. Follow-up visits are scheduled for six and 12 months after the basic or comprehensive programs.

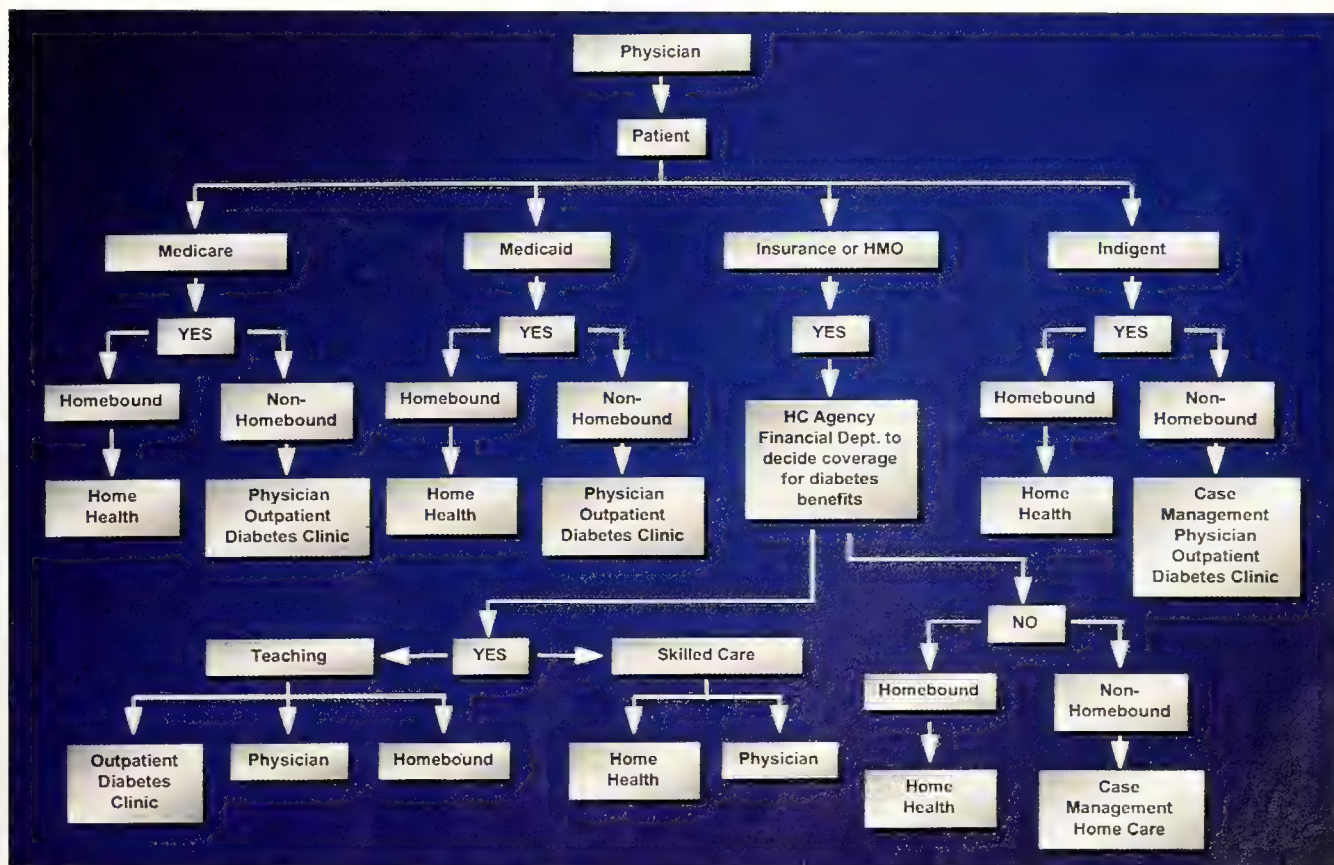
All patients of Dr. Kelling who have diabetes are referred to the outpatient Diabetes Self-Care Program or to home care, thus extending the continuum of care into the community. Figure 1 shows a flow diagram of what happens depending on whether patients are homebound or non-homebound and whether

they need only teaching or skilled nursing care as well. All patients in the program receive appropriate referrals and care, regardless of their source of funding. Figure 2, next page, demonstrates how referrals and information flow between physicians, nurses, dietitians, and social workers. Patients with poorly regulated diabetes are referred to the Endocrinology Clinic, the Diabetes Self-Care Program, or home care for medical management or education. Teaching plans for homebound patients with diabetes were developed by the home care agencies to make visits more organized and provide continuity of care.

Providing continuity of care can decrease diabetes-related hospitalizations and prevent the development of chronic complications. Since the program began, not one patient enrolled in this coordinated diabetes care system has been readmitted to the hospital because of uncontrolled diabetes.

## Surveillance

The flow diagrams were developed using the American Diabetes Association (ADA) *Standards of Medical Care*.<sup>5</sup> These standards call for an annual history and physical examination, ophthalmological exam, foot exam, blood lipid profile measurement, urinalysis (including testing for microalbuminuria)



**Fig 1:** Diabetic patients' journey through the health care system depending on whether they are homebound or non-homebound and whether they need only teaching or skilled nursing care as well.



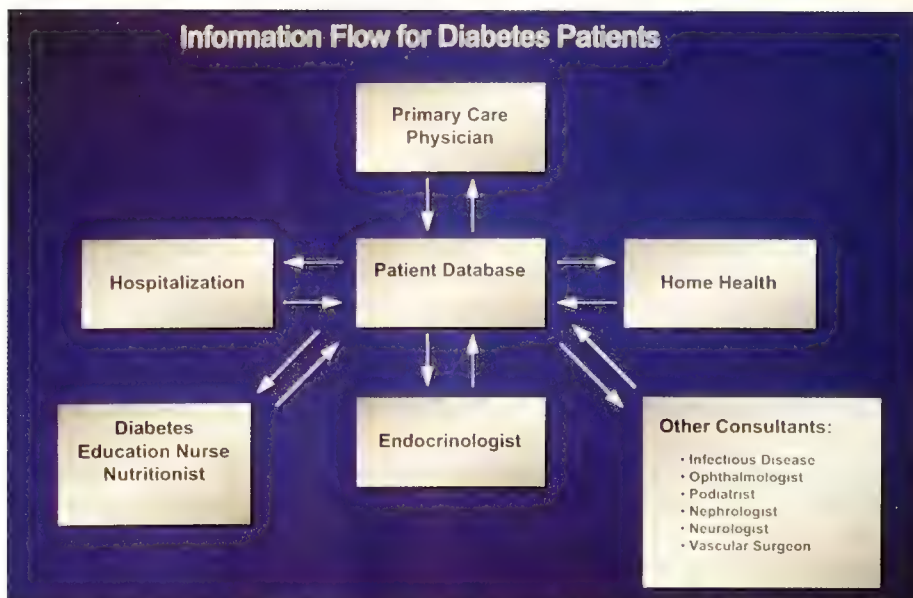
and electrocardiogram. The ADA Standards define basic medical care but do not preclude further evaluation or management by specialists if needed. Rather, the standards guide health care professionals in setting treatment goals, assessing the quality of care, identifying areas that need more attention or self-management training, and defining appropriate referrals to specialists.

Standing orders for inpatient and outpatient care were written by Dr. Kelling to comply with ADA standards. These orders include determining the percentage of glycated hemoglobin every three months in insulin-treated patients and, as needed, to assess achievement of glycemia goals in noninsulin-treated patients.<sup>5</sup> Urinary albumin/creatinine ratio (including microalbuminuria) is assessed yearly or as indicated, and patients are referred to a nephrologist when appropriate. Blood lipid profiles are determined yearly or as indicated. Based on input from physician specialists, mechanisms for making referrals and obtaining laboratory data were built into the system of flow diagrams and standing orders.

Areas of special concern relate to the serious consequences of diabetic neuropathy, retinopathy, peripheral vascular disease, foot ulcers, hyperlipidemia, nephropathy, and hypertension. Flow diagrams were developed to assess patient status relative to each potential complication, denoting when to obtain laboratory testing or consultation depending on previous laboratory values and the condition of the patient.<sup>6</sup> For instance, the flow diagram for nephropathy takes into consideration blood pressure and denotes criteria for obtaining laboratory tests, referral to specialists, and follow-up office visits.<sup>5</sup> The retinopathy flow diagram adheres to the ADA recommendation for a yearly dilated eye examination. The flow diagram for hyperlipidemia addresses three situations: diabetes in patients with known atherosclerotic disease; in those with no atherosclerotic disease but at least one additional risk factor for its development; and diabetes in those with neither atherosclerotic disease or known risk factors.<sup>5,7</sup>

## A Database for Clinical Information

A computer database program (Humabase III) was generously provided by Eli Lilly and Company. With the help of the hospital's Department of Information Systems we hoped to link all computer entries for a given patient, whether generated in the hospital, clinic, diabetes education program, or home care agencies. Unfortunately, our current computer system will not allow linkage of the different sites, so information from the outpatient education program and from home care is faxed to



Dr. Kelling's office where it is entered into the patient's Humabase record (Figure 2, above). So far, data on approximately 425 patients have been entered.

A new computer system is being installed and will link the hospital, hospital clinics, and home care agencies, allowing all to have immediate access to information and preventing duplicate ordering of laboratory tests and procedures. A tracking system will prompt the physician on when to order laboratory studies depending on clinical values such as blood lipid levels or elapsed time since last testing (as with glycated hemoglobin).

## How Have Our Patients Done?

The medical-surgical clinical nurse specialist working in the hospital inpatient program evaluated the effectiveness of the program by determining patients' plasma glucose levels before and after enrollment. We present here data only from patients with Type 2 diabetes mellitus followed in Dr. Kelling's office. Case records of a convenience sample of 50 patients were reviewed to determine glycated hemoglobin and plasma glucose values in each patient before and two to six months after receiving self-management education. Data were analyzed using SPSS software for the PC.

We measured glucose values by retrospective chart review. One blood glucose level was obtained per patient before and after the program. These values may have been by fingerstick at home, office, or hospital, or by fasting or random venous blood collection. The mean plasma glucose was 216 mg/dL before the self-management education and 169 mg/dL after (normal range 70-135 mg/dL). These results are statistically quite different from one another ( $p=0.003$  by paired t-test). The mean glycated hemoglobin value was 8.5% before the self-management education and 7.6% after ( $p<0.001$  by paired t-test).

**Table 1. Effect of a systematic diabetes management program on health of enrollees**

Variable measured	Population	Before program	After program
Mean (SD) blood sugar	50 random patient charts	216 mg/dL (112.4)	169 mg/dL (60.2) $p=0.003^*$
Mean (SD) glycated hemoglobin	50 random patient charts	8.5% (2.1)	7.6% (1.3) $p<0.001^*$
Mean (SD) glycated hemoglobin	All 390 patients enrolled	8.6% (2.2)	7.3% (1.6) $p<0.001^*$
<b>(11/1/95 - 11/1/96)</b>			
Mean (SD) LDL cholesterol	241 patients enrolled	156 mg/dL (44.2)	128 mg/dL (37.5) $p<0.001^*$
<b>(10/10/95 - 10/10/96)</b>			
Mean (SD) LDL cholesterol	90 patients with known coronary artery disease	150 mg/dL (35.6)	117 mg/dL (33.5) $p<0.001^*$

\*paired t-test

The positive findings from our 50-patient study were reinforced when we found a 15% reduction in mean glycated hemoglobin (from 8.6% to 7.3%; normal range 4.4-6.4%) of the 390 patients entered in the database from November 1, 1995, to November 1, 1996 (Table 1). Overall, our data support the position that education in diabetes self-management had a positive effect on patients' ability to control their diabetes, although other potentially confounding factors (such as changes in medication regimens, diet or exercise programs) were not measured in this study.

Lipid profiles obtained on the 241 patients entered in the diabetes database from October 10, 1995, to October 1, 1996, showed a reduction of low-density lipoprotein (LDL) cholesterol concentration from a mean value of 156 mg/dL to 128 mg/dL ( $p<0.001$  by paired t-test; Table 1) (normal range 104-130 mg/dL). In a subset of 90 patients with known coronary artery disease, LDL cholesterol concentration fell 22%, from 150 mg/dL to 117 mg/dL.

The overall efficiency of the database is shown by the fact that 176 of 425 patients (41%) have been referred for eye examination because they had not seen an ophthalmologist in more than a year. And by July 1996, 117 of the 425 patients (28%) had been referred to a nephrologist, in 86% of cases because of newly discovered micro- or macroalbuminuria or renal insufficiency.

## Conclusions

"Managed care" in the best sense of the word can represent a significant step forward in health care delivery. We have outlined how one coordinated effort by health care professionals minimized disruption and fragmentation of care while maximizing patient satisfaction and quality care and cost outcomes. The success of this coordinated diabetes care program in lowering the patients' blood sugar and lipid levels demonstrates its potential benefits. Another measure of success is the complete avoidance of hospitalization for uncontrolled diabetes of all patients enrolled in the coordinated care system from its outset (of course, there was no control group for comparison,

but certainly none could have done better). The task force continues to collaborate on organizing and implementing strategies designed to minimize overlap or gaps in care processes. □

**Acknowledgments:** The authors thank members of the Cabarrus County Diabetes Task Force and other contributors for their assistance:

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# The Medicolegal Guidelines

## An Invitation to Resurrect and Revise

Anne Duvoisin, JD

Dramatic changes have swept across North Carolina's medical and legal landscapes within the past six years. Since the NC Medicolegal Guidelines were adopted in 1991, consider that:

- ◆ Managed care has changed the economics of medicine and the nature of medical practice;
- ◆ Medical records are now almost entirely entered and transmitted electronically, raising new privacy and access issues;
- ◆ Physician-assisted suicide regularly raises ethical questions about terminal care and euthanasia;
- ◆ Federal and North Carolina law relating to provider's liens, and Medicare and Medicaid liens and coverage continue to evolve independently and often inconsistently;
- ◆ Mediation and arbitration challenge the court system by providing less expensive, less painful means for resolving medical malpractice, personal injury, worker's compensation, and other health care disputes.

Despite these changes, the antipathy between physicians and advocates remains. Therefore, the need exists for guidelines to add civility to the interaction between the two professions. The current guidelines must make sense in the modern medical and legal world order. Recognizing that need, the NC Medical Society and the NC Bar Association have directed their Joint Committee to rewrite the current edition of the Guidelines.

The Committee will conduct hearings to determine the wish list of affected parties before embarking on revision. To that end, I invite you, *Journal* readers, to help us revise the guidelines so that they suit your needs—but you need to let us know what those needs are. Write a letter to *Journal* Editor Dr. Frank Neelon; offer to speak at a hearing; or call me or my co-chair, Dr. Jack Emery of Kaiser Permanente, Ann Hale, Medical Society Committee Liaison, or Elaine Nanney, Bar Association Committee Liaison, and share your ideas with us.\*

\*Ms. Duvoisin is a Professional Mediator and Arbitrator, and Co-Chair of the Joint Committee of the NC Medical Society and the NC Bar Association. Her number is 919/493-5093, e-mail: ald@gloryroad.net; Dr. Jack Emery: 919/981-5799; Ann Hale, NCMS: 800/722-1350, e-mail: ahale@ncmedsoc.org; Elaine Nanney, NCBA: 919/677-0761, e-mail: NCBA@mail.barlinc.org

### Reviving the Committee

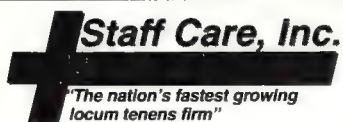
During past several years, the Joint Committee, comprised of three lawyers and three physicians, has risen from the ashes of its dormancy since the 1991 rewrite. The Committee was revived to handle a backlog of complaints from doctors and lawyers about each others' lack of professionalism. According to its mandate, the Committee has sought to resolve these disputes, or farm them out to local medicolegal committees that are active in some parts of the state.

Disputes typically arise from basic issues of common controversy between doctors and lawyers in trial settings (other than malpractice cases). These fall into predictable areas that are thoroughly addressed in the text of the Guidelines: cooperation and communication between the doctor and his or her patient's lawyer; medical records provision and contents; depositions versus trial testimony; subpoena power and its abuse; and, as always, timely payment and the reasonableness of physician's fees for testimony, report writing, and consultation.

The Committee has decided to examine whether the content and scope of the Guidelines should change, or whether they should be merely updated to acknowledge certain changes in legal and medical practice and statutory changes:

- ◆ Should the Guidelines be voluntary, as they are now, or should compliance be mandatory, and enforced by the licensing authorities regulating each profession?
- ◆ Should the Guidelines apply only to lawyers and doctors, as they do now, or should they apply to hospitals and HMOs, medical office managers and paralegals, and ancillary or parallel professions, such as psychologists and family nurse practitioners?
- ◆ Should new procedures and understandings be written into the Guidelines to more accurately reflect the face of medicine and law today?

**We need your answers.** The Joint Committee seeks volunteers from the medical and legal community to educate us on your needs and concerns so that the new Guidelines will better serve us all. Please contact us. □



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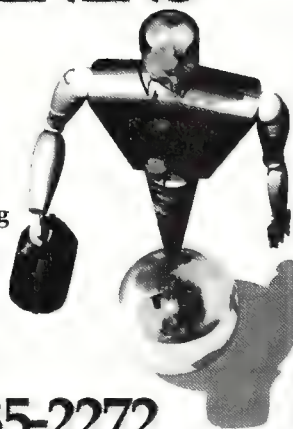
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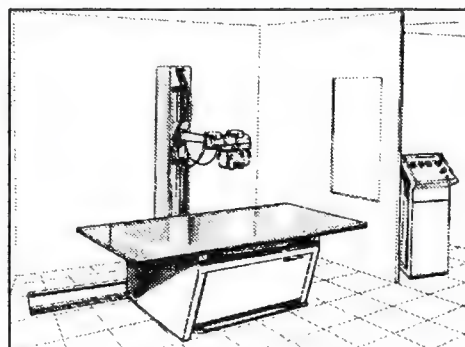
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# Minimally Invasive Cardiac Surgery

## Heart Surgery for the 21st Century

Joseph R. Elbeery, MD, and W. Randolph Chitwood, Jr, MD

What is now known as "minimally invasive surgery" really began when Dubois performed the first laparoscopic cholecystectomy in France in 1987. Brought to this country by McKernan and Reddick in 1988, the laparoscopic approach quickly became standard practice for gallbladder surgery. Many other general surgical operations are now performed using laparoscopy, but cardiac surgery has been slow to adopt such less invasive techniques. In 1995, Robinson<sup>1</sup> reported the first minimally invasive coronary artery bypass graft (CABG); in Europe, Carpentier performed the first minimally invasive mitral valve procedure in February 1996.<sup>2</sup> A wave of enthusiasm for minimally invasive cardiac operations has followed.

In this paper we review the current status of minimally invasive cardiac surgery, describe the operations currently used, and profile patients qualified for operation by these techniques. In addition, we discuss what the future may hold for minimally invasive technologies.

### Coronary Artery Bypass Surgery

The minimally invasive cardiac procedure most commonly performed today is the direct anastomosis of the left internal mammary artery (LIMA) to the left anterior descending coronary artery (LAD). It requires an incision only 3 or 4 inches long (Figure 1, next page) at the site of the fourth or fifth left costal cartilage, which has sometimes been resected for added exposure. Advances in instrumentation make resection of the cartilage unnecessary and allow the entire LIMA to be harvested to the level of the subclavian vein. The operation, which is performed on the beating heart without the use of cardiopulmonary bypass, is known by various names, the most common of which is MIDCAB (minimally invasive direct coronary artery bypass). Other pseudonyms include keyhole surgery, trapdoor surgery, LAST (left anterior small thoracotomy), and minicabg.

In the vast majority of cases, the anterior descending coronary artery is remarkably accessible through this incision.

Generally, the first thing visualized upon opening the pericardium is the coronary artery that is to be grafted. When the artery lies inside the heart muscle and cannot be easily located (less than 5% of cases), the procedure is converted to a standard open CABG using median sternotomy and the heart-lung machine. Conversion is less commonly needed because the LAD is severely and diffusely calcified or the LIMA is inadequate or otherwise unusable.

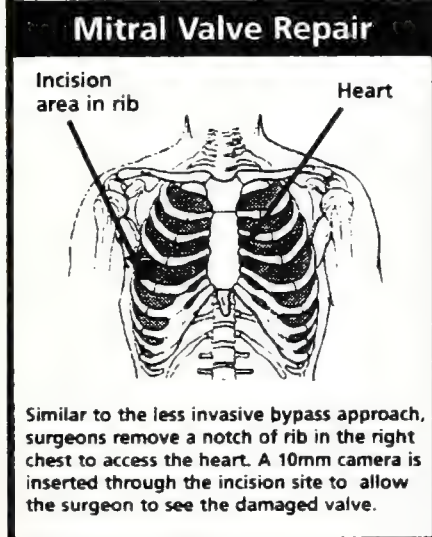
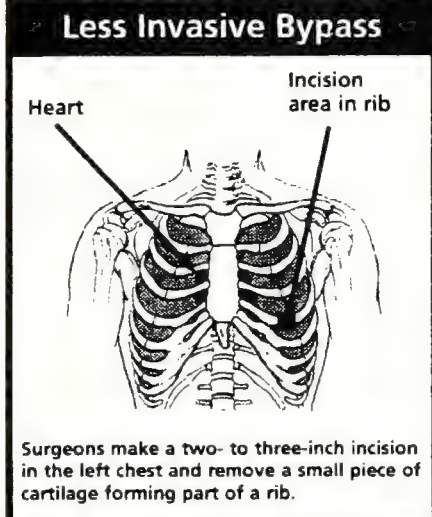
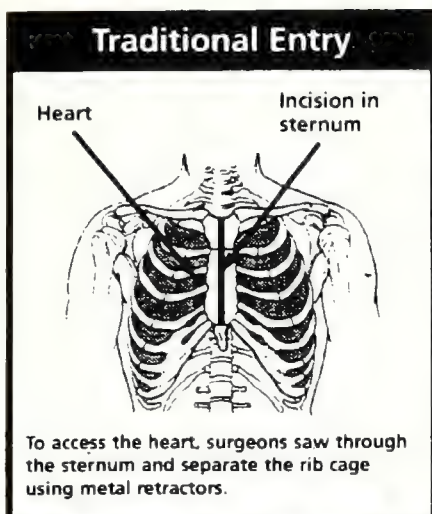
Many centers have used drugs to slow the heart and facilitate sewing but commercially available heart stabilizing devices (Cardiothoracic Systems, Cupertino, CA) make control of heart rate less important (Figure 2, page 376). The mammary-to-coronary artery anastomosis is performed using the surgeon's standard suture technique and the resulting bypass is identical to that performed using the heart-lung machine and a sternum-splitting incision.

Early results of MIDCAB operations from multiple centers in the United States and abroad are quite promising.<sup>3</sup> The grafted arteries remain patent in more than 95% of cases and conversion to open operation occurs in only about 5% of cases. In another 5% of cases there is a need for reintervention via repeat surgery or percutaneous angioplasty. One of the most positive aspects of the procedure is that in the event of any type of problem, standard bypass surgery is available as the backup procedure. In nearly all cases of conversion or reintervention, the LIMA can still be used as the bypass conduit.

Although most of cases described to date have involved bypass of the anterior descending coronary artery, other vessels are amenable to this approach. Very proximal right coronary artery lesions may be bypassed using the right internal mammary artery, and the LIMA may be used as a sequential conduit to other arteries on the front of the heart.

MIDCAB shows great promise and will likely play an increasingly important role in the evolution of coronary revascularization. Advantages of this procedure include elimination of the heart-lung machine, thereby decreasing the risk of perioperative stroke, respiratory distress, renal dysfunction,

The authors are affiliated with East Carolina Univ. School of Medicine. Dr. Elbeery is Assistant Professor, Division of Cardiothoracic Surgery; and Dr. Chitwood is Professor and Chair, Department of Surgery, and Chief, Division of Cardiothoracic Surgery.



**Fig 1:** Schematic diagram illustrating incision locations for standard CABG, MIDCAB, and Micro-Mitral operations. (Courtesy of East Carolina University Press)

and coagulopathy requiring blood transfusion. Furthermore, hospital stay, time to full recovery, and long-term incisional pain problems seem to be decreased.

The number of centers performing MIDCAB continue to grow. In the future we may anticipate "hybrid" revascularization procedures such as percutaneous stent placement in the right and circumflex coronary arteries with MIDCAB internal mammary artery bypass of the LAD. This has not yet been (and will need to be) tested against standard CABG in randomized trials, but offers the promise of complete revascularization in patients who have more than one artery blocked, while still providing a short hospital stay and rapid recovery. In the future, we may also expect technological advances that will make more coronary arteries accessible through small incisions without the use of cardiopulmonary bypass.

## Mitral Valve Procedures

Recently, the mitral valve has been repaired and replaced using video-assisted, minimally invasive techniques. In North America the first such operation was done by Chitwood in May 1996.<sup>4</sup> Since then he has repaired or replaced more than 30 mitral valves, through a 2.5- to 3-inch right lateral mini-thoracotomy incision (Figure 1, at left), using a thoracoscope and specially designed minimally invasive instruments. The rapidity with which these patients return to a normal activity level is quite impressive.

The mitral valve procedure is performed using cardiopulmonary bypass via cannulation of the femoral artery and right atrium. A specially designed aortic clamp is passed through a separate small port to stop blood flow to the heart. Myocardial protection is provided by a retrograde cardioplegia cannula passed into the coronary sinus through the right atrium. Antegrade cardioplegia and venting of the aortic root is achieved through a needle catheter in the ascending aorta. The mitral apparatus is visualized directly through the incision and also on the video screen via the thoracoscope. The mitral valve is seen more clearly this way than is ever possible using a standard median sternotomy. This visualization facilitates valve repair or replacement. Mitral valve repair procedures—including insertion of an annuloplasty ring, chordal replacement, and quadrangular resection—are all performed in standard fashion as is valve replacement.

Preliminary analysis of the patients operated on with this technique shows no increase in morbidity or mortality. Hospital stays appear to be reduced, as do analgesic requirements and hospital costs.

Minimally invasive mitral valve surgery is in its infancy. Current techniques are crude, but physicians and industry are rapidly developing tools to make the procedures more "user friendly" so that all cardiac surgeons will be comfortable in its performance. In the future we can expect refined cannulation techniques (avoiding groin cannulation altogether), three-dimensional video equipment, and novel, partial cardiopulmonary bypass strategies.

## Aortic Valve Replacement

Minimally invasive aortic valve replacement is being developed. At present, all procedures involve the use of cardiopulmonary bypass, but they avoid median sternotomy. A technique popularized by the Cleveland Clinic group uses a right parasternal incision and requires removal of two or three costal cartilages. Cardiopulmonary bypass and subsequent valve replacement are performed similarly to current standard practice. Patients have experienced significantly less pain, length of stay has been reduced by one day, and costs reduced 19% compared to aortic valve replacement using median sternotomy.<sup>5</sup>



Another approach, developed at Loma Linda, involves a hemisternotomy or "ministernotomy." A midline incision divides only the upper portion of the sternum. Cardiopulmonary bypass and valve replacement are performed in standard fashion. As at the Cleveland Clinic, postoperative pain and hospital length of stay are lessened without an increase in overall costs, morbidity, or mortality.<sup>8</sup>

Thus far, the advantage of minimally invasive aortic valve procedures is that they avoid complete median sternotomy. Visualization of the cardiac structures through these new approaches is *not* enhanced and may actually be less than that provided by standard median sternotomy. It remains to be proven whether these procedures will offer any dramatic advantage over standard aortic valve replacement. Nonetheless, their development illustrates the ongoing movement toward modification and improvement of current valve techniques.

## Port Access Surgery

A unique approach to minimally invasive heart surgery has been introduced by the Stanford group in conjunction with a company called Heartport (Redwood City, CA). This work has received significant attention in the lay press. The technique uses an "endoclamp," an endovascular balloon used to occlude the ascending aorta in lieu of a crossclamp. Cardioplegia is administered and venting performed through the endoclamp catheter into the aortic root. The endoclamp is placed via the femoral artery under fluoroscopic guidance. Other technical

details of port-access surgery include the use of the femoral artery and vein for cannulation for cardiopulmonary bypass. All procedures are performed in a bloodless field on an arrested heart. Port access coronary artery bypass surgery was initially attempted under thoracoscopic guidance but now uses small incisions to allow direct anastomoses to the coronary arteries, similar to the MIDCAB procedure.<sup>6</sup>

Several centers have used Heartport technology for mitral valve repair and replacement. The procedure is very similar to that described by Chitwood except for the use of the endoclamp and the requirement for femoral vein cannulation. Its advantages are that it avoids external aortic clamping and provides access to the aortic root for venting and cardioplegia administration; its limitations are that it cannot be used in an atherosclerotic aorta, or in the presence of aorto-iliac disease.<sup>7</sup>

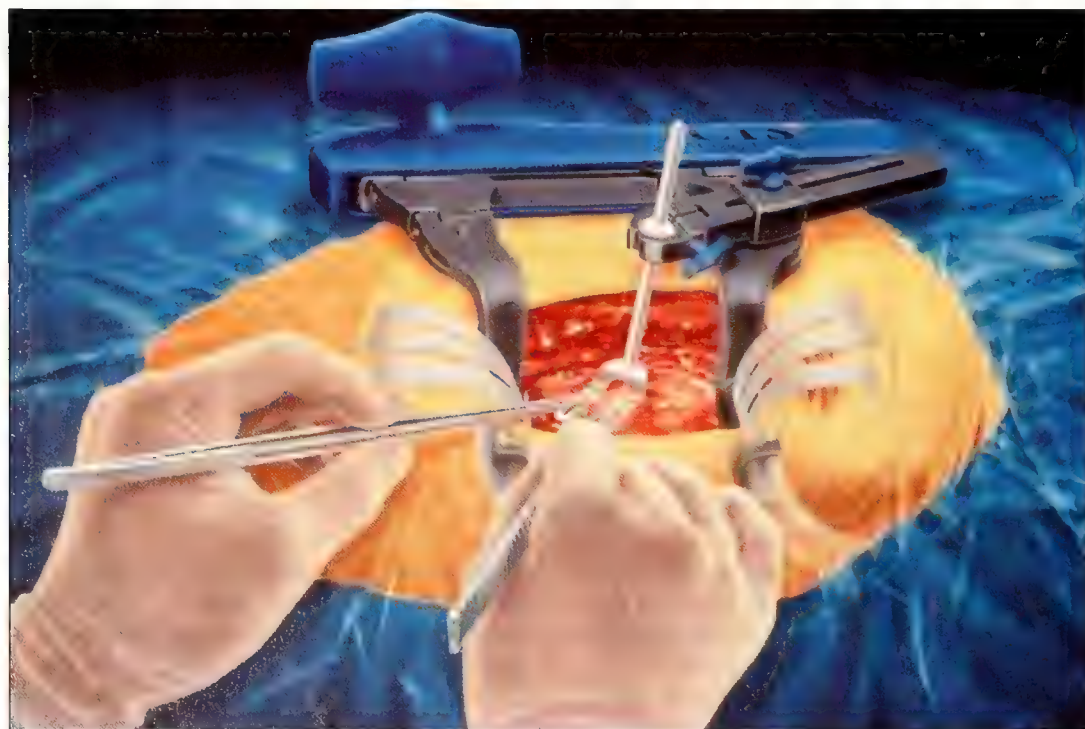
Port access surgery is probably the most innovative of the procedures discussed. The technique offers a completely new way to induce cardiac standstill, which allows minimally invasive cardiac procedures to be performed on a quiet heart. The use of a high pressure intra-aortic balloon crossclamp may limit application, however. Ongoing clinical trials will help determine the role of this technology in the future of cardiac surgery.

## Summary

Cardiac surgery remained largely unchanged while other surgical specialties moved rapidly toward less invasive operations during the past 10 years. In the past year, however, heart surgery

has begun to turn in a minimally invasive direction. The present feverish pace is fueled by the media and patient preference as well as commercial developments that have made minimally invasive heart surgery possible. At present, select coronary artery bypass procedures can be performed without the use of cardiopulmonary bypass or median sternotomy. Both mitral and aortic valve replacements can now be done through limited incisions that avoid sternal splitting.

These minimally invasive operations probably represent the infancy of a new era of



**Fig 2:** Representation of the heart stabilizing device enabling coronary bypass without the heart-lung machine. (Courtesy of Cardiothoracic Systems, Inc.)



cardiac surgery. In the 21st century, many coronary bypass operations will be performed as ambulatory procedures with same day or next day discharge. Patients will return to full activity within a week. Cardiac valve procedures will remain inpatient procedures with hospital stays of approximately three days and return to normal activity will occur at two weeks. We will attain these goals given the current state of the art. Imagine what vast improvements the future holds. □

**Acknowledgments:** *The authors recognize the Minimally Invasive Surgery Work Group of ECU School of Medicine. The Group's multidisciplinary team consists of Dr. David Deaton, Vascular Surgery; Dr. William Chapman, General Surgery; Dr. Jon Moran, Thoracic Surgery; and Dr. William Wooden, Plastic Surgery.*

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October 24

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**Format:** Essays must be original scholarship on a topic in the history of medicine or allied sciences, not to exceed 5000 words (excluding references, tables, and figures). The author's name should not appear on the paper. *Send four copies of the manuscript, including tables and figures*, with a separate sheet giving the author's name, address, and telephone number and the essay title. Materials will be returned only if accompanied by a self-addressed envelope bearing sufficient postage.

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# North Carolina Medicine

## A Conversation With Dr. Gene Stead

Charles F. Wooley, MD

Eugene A. Stead, Jr., remains a tall figure on the 20th century medical horizon—but as the century fades so does the shadow he cast. Precisely for that reason I want to recapture the man, the times, the influences that his mentors transmitted to him, and in turn, he to others as mentor to several generations of young doctors.

Neither the interaction between mentor and receptive student of medicine nor its long-term consequences have been well documented or explored in contemporary medicine. And yet mentor-student interactions are fundamental in career selection and development. Who are these mentors? Where do these people come from? What moves them to do what they do? Can we identify and nurture a new generation of mentors?

I have spent a fair amount of time tracing the academic heritage in Internal Medicine and Cardiology at The Ohio State University, establishing an academic pedigree in terms of the men and women who shaped our institution—their origins, early influences, mentors, academic paths. It has turned out to be a fascinating experience; every academic medical unit or institution has its own unique academic heritage (or suffers from the lack of one). Part of that heritage involves North Carolina with Ohio.

In 1990, when Dr. Eugene Stead came to Columbus to present the James V. Warren Lecture at The Ohio State University College of Medicine, I was already on the trail of an earlier Stead-Warren connection—I knew that they had played important roles in the formation of concepts in cardiology and internal medicine, and in the configuration of Departments of Medicine and Sections of Cardiology. Stead and soon after, Warren, had been present during the restructuring of important academic units in Boston in the 1930s before they moved on to develop new programs and units at other academic sites during the next five decades. Their personal friendship and professional interactions continued throughout their active careers.

At the time of his lectureship Stead and I spoke about Medicine—of the 1930s and the 1990s. We spoke of Stead's early days as a House Officer in Boston, his early faculty position there with Soma Weiss (1937-1942), his tenure as Professor and Dean at Emory University and the Grady Hospi-

tal in Atlanta (1942-1946), the Chairmanship at Duke University in Durham (1947-1967), and his role as Emeritus Professor and senior statesman in US and North Carolina Medicine since.

The occasion of our meeting was one of mixed emotions. Jim Warren, long-term Chairman and Professor of Medicine at Ohio State, and a Stead disciple, associate, and close friend from those Boston, Atlanta, and Durham days, had died a few months earlier. The yearly Warren Lecture became the first Warren Memorial Lecture in 1990. It seemed appropriate that Dr. Stead had already been scheduled to speak at the occasion.

### The Stead Legacy

I knew Dr. Stead by reputation—a legendary figure in his own time.<sup>1-3</sup> Dr. Joseph M. Ryan, my first chief of cardiology at Ohio State, had been with Stead at Duke, and I heard many Stead principles, maxims, and directives from Joe Ryan. Dr. Stead was a major influence in the lives and careers of the cadre of men who accompanied him from Boston to Emory, and to Duke—as well as the large numbers of men and women who came into his orbit during his many-faceted career. At the time we spoke, I didn't recognize all the "players" in the Stead drama, but later I got to know more about the individuals, the rhythms of their lives, the timing of events, the shifting tides of medicine and medical education. Most importantly, I got to know their academic heritage—the Stead legacy.

I already knew certain Stead influences had entered the Ohio State "gene pool." A Duke-Ohio State connection had been operative since the earliest Stead years, with Duke faculty members and chief residents joining the Ohio State faculty, Ohio State medical students and house staff moving on to Duke. Five of Stead's chief residents—Robert Atwell (1946-1947), Jim Schieve (1949-1950), Arnold M. Weissler (1958-1959), Charles Mengel (1961-1962), and Earl Metz (1965-1966)—came to Ohio State as faculty. Four Stead associates who came to Ohio State during the Warren years (Wallace Jensen, James Leonard, Charles Mengel, and Arnold Weissler) later chaired departments of medicine. Among the many Ohio State physi-

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cians who moved to Duke are current faculty members Tom Bashore, Jeff Crawford, Russel Kaufman, Mark Leithe, Tom Long, Ken Morris, Ed Pritchett, and Michael Sketch, Jr.

At the time of our discussion I was attempting to trace the genealogy of the Cardiology Division at Ohio State. As I did so, I noticed that the path was strewn with shards of cardiac research that could be traced to Soma Weiss in Boston and to the young men who worked with Weiss. Following Weiss' premature death, Stead and a group of young associates (including Jim Warren) passed through Georgia and later to North Carolina.

The recurrent research themes in Boston, Atlanta, and Durham involved the mechanisms of symptoms and disease that affected "the circulation"—syncope, shock, heart failure, hypertension, the circulation of blood in peripheral tissues. The themes were restructured or restated in the physiologic and metabolic language of each decade as the technology of each period was adapted to the search. The Weiss/Stead/Warren research themes and physiologic messages were carried Johnny Appleseed-like around the country by the many professors of medicine who trained with Stead before going forth to populate a number of academic programs over several decades.

## Finding a Mentor

During our conversation, Dr. Stead didn't miss a beat. As I listened, he told his story in a way that made me think it was the first time it had ever been told. Not so, of course, but much of it was news to me.<sup>1,3</sup> Out of the past, he called up Soma Weiss, dead but come to life in the intensity of Stead's reenactment of those Boston days—first at the Boston City Hospital and later at the Peter Bent Brigham Hospital.<sup>4,5</sup> Stead had been a house officer at the Brigham before becoming chief medical resident at the University of Cincinnati.

*"I met Soma in my fifth year of training. I was chief resident at the Cincinnati General Hospital. In those days chairmen had relatively few disciples. Soma never had a lot of people around until the time of World War II. But he had one or two people who worked with him for a two-year period. One of those people was Gene Ferris. Gene had come to Cincinnati as a young professor, and Soma promised him that he would come out and spend a week on the service with him.*

*Sometime in January 1937, Soma appeared. I worked with him during the course of the week. It was perfectly clear that here was a clinician of a type I'd never met before. He really wanted to know. He approached the patient not primarily to make a conventional diagnosis but to understand what was happening with the patient—if the patient had a complaint, if he fainted, or if he hurt. Soma always began with the symptoms and tried to come up with an answer. Why did it occur?*

*The end result was that instead of being the pathology-oriented system that I'd been used to, the questions that were asked were quite different. I found it fascinat-*

*ing—and I already knew a fair amount of clinical medicine. I had a great time. When we got through, I said to Dr. Weiss: 'I'm planning on going into practice in Atlanta at the end of this year, but I really would like to come and work with you. But I don't care about working with anybody else.' And so he said, 'Okay, we can set that up and see what we can do.'*

*So after he got back to Boston, he called and said he did have a place and that, for my sixth year out of medical school, he would pay me \$900. And I said, 'Well I can't accept that. My brother is in medical school. I'm paying part of his tuition. I've got other family responsibilities. I've got to start paying back my tuition debt. I've got to have \$1800.' And he said, 'Well, I just regret to tell you, we've never paid anybody \$1800. I can't find the money.' And I said, 'Well, let's don't worry about it and I'll just go on into practice. But, if by any chance \$900 more would turn up, ahh...'*

*So around May I got a telegram, 'Extra \$900,' so I went to Boston City Hospital."<sup>6</sup>*

Looking back, it is difficult to explain to the post-Depression and post-World War II generation just how small and tight was the medical system that Stead describes. The economic environment was so sparse that an amount of money that seems almost trivial by present standards could determine career directions and decisions. But this was the case, not only for Gene Stead, but for many other young men and women during the Depression years that led up to the Second World War.

Similarly, the informal nature of the application—the almost negligible negotiation, the arrangement, the final "contract"—seem incredibly simple. *"I would like to come and work with you,"* Stead said. *"Okay, we can set that up,"* Weiss replied. No multiple interviews, no mandated searches, no letters of inquiry or support, no grant applications. Gene Stead found a mentor; Soma Weiss identified a superior talent; a handshake; a telegram.

## Warren in Stead's Footsteps

Some time earlier, Dr. Jim Warren and I had spoken of Warren's coming of age in Boston as a Harvard medical student, class of 1939. *"At that time, Harvard was filled with unbelievable academicians. It's small wonder that so many of us did go into academic medicine."* During his fourth year at Harvard, Jim Warren spent an elective block of time doing research.

*"I had the bravery to go to Dr. Weiss and say I wanted to spend that time with him. He graciously accepted me and I saw a lot of Dr. Weiss. But right at the firing line, at the bench, I was working primarily with Lewis Dexter. Dr. Weiss thought toxemia of pregnancy was a form of hypertension which we could see come and go—and might be worth studying. I spent many hours in the delivery rooms of Boston City Hospital taking blood*

pressure of newborn infants right at the moment of delivery. We did not discover any great things, but there was a book produced and it was influential on me. I think it made me certain that that's what I wanted to do. As we say today, Dr. Weiss was the role model.

The word that young—he was young then, only about 40—Dr. Soma Weiss was going over to head up the medical service at Brigham, which was very exciting to all of us. That's why I elected to go to Brigham for my internship and residency. I went to Brigham and my house staff colleagues [Dr. Paul Beeson and Dr. Jack Meyers among other future academic leaders] were outstanding.

Dr. Stead was around at that time, and during the summer before my internship started I worked with Dr. Stead and his one and only fellow, Dr. Richard Ebert. If you look up the *Journal of Clinical Investigation* of the early 1940s, you will find an article in there on how much blood could be pooled in the extremities by tourniquets. In the diagram—the case that's used as the example for the illustration in the small legend—you can see it's 'subject J.W.' We worked on ourselves, amazingly."<sup>7</sup>

Notice here some clues to the mentor mysteries I mentioned earlier, first in Stead's comments about Soma Weiss, and then in Warren's comments about Weiss and Stead: "I really would like to come and work with you." The recognition by Stead, and his active approach, not waiting for an invitation. Or Jim Warren saying "I had the bravery to go to Dr. Weiss and say I wanted to spend that time with him." Recognition, and the active approach by an interactive student.

Warren, working with Stead and Ebert, carried out research studies that involved "working on ourselves" to solve basic questions about "The Circulation" (Jim Warren always spoke of "The Circulation" in capital letters; now I knew why).

Stead has described the changes that occurred at the Brigham Hospital, the Harvard Medical School, and the Cambridge campus during the two years and five months (1939-1942) that Soma Weiss served as the Hersey Professor of the Theory and Practice of Physic at the Harvard Medical School and Physician-in-Chief at the Peter Bent Brigham Hospital: "The era of clinical description was over. Doctors alone could not master disease. Chemists, physicists, mathematicians, geneticists, en-

gineers, and persons from other disciplines had to become part of the mix. The medical service at the Brigham would undergo dramatic and lasting changes."<sup>4</sup> These sentiments reverberated through Atlanta and Durham shortly thereafter.

I want to make an additional observation about our "academic heritage" as physicians. Doctors are mentor-driven people. Mentoring forms a recurrent theme in medical lives. Listen to physicians and clinicians as they reminisce, as they sum up the influences on their lives and careers, as they point out the way to younger colleagues. In 1992, in *Academic Heritage: The Transmission of Excellence—Cardiology at The Ohio State University*, I traced the academic pedigree of an institution. The process involved discussions of Weiss, Stead, and Warren, and interviews with Stead and Warren. In a review of the book in *The Pharos*, Dr. Stanford S. Kroopf, archivist at Stanford University Medical School, re-enforced these themes:

"The interviews with Drs. James Warren and Eugene Stead are outstanding and of particular interest to me. Along with Jim Warren, I was member of Soma Weiss' house staff at the Peter Bent Brigham Hospital before and after his death and shared with Jim his magic, inspirational touch. Gene Stead was my chief after Soma's death—a different but superb mentor. In his interview with Jim Warren, Wooley brings out his emergence from a shy, intense medical student to a brilliant researcher and dynamic organizer, talented in his own right. The Stead interview reflected his cutting wit, his confident, direct manner, and his quick, inventive mind."<sup>8</sup>

## Conclusion

The careers and reputations of Weiss and Stead were enhanced by a group of young doctors, including Jim Warren, who were attracted to Weiss and his Boston programs. When Weiss died in 1942, many of these young physicians moved on with Stead, searching out their individual destinies at Emory or Duke before they, in turn, moved on to other academic centers, carrying the influences of both legends with them. Stead's decision to return to Boston from Cincinnati, to embark with Soma Weiss on an academic investigative, teaching, and administrative career, had profound later effects on North Carolina Medicine when Stead eventually settled in Durham at Duke University. What a difference \$900 made! □

## References

- 1 Wagner GS, Cebe B, Rozear MP, eds. E.A. Stead Jr. What this patient needs is a doctor. Durham, NC: Carolina Academic Press, 1978, pp 150-4.
- 2 Hollingsworth W. Taking care: the legacy of Soma Weiss, Eugene Stead and Paul Beeson. Chapel Hill, NC: Professional Press, 1994, pp 80-1.
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- 6 Wooley CF. The Stead interview. In: *Academic Heritage: The Transmission of Excellence*. Mount Kisco, NY: Futura Publishing Co., 1992, pp 149-67.
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# CME Calendar

## *September 16-October 21*

### **Medical Writing Course**

Place: Duke University

Fee: \$120

Info: 7-9 pm, six Tuesdays; Duke Continuing Education, 919/684-6259, mention class ID 1533

## *September 18-21*

### **Coastal Medical Retreat and**

### **14th Aesculapian Sports Classic**

Place: Kingston Plantation, North Myrtle Beach, SC

Credit: 9 hours Category 1, AMA

Info: Beth Mixon, Coastal AHEC, P.O. Box 9025, Wilmington 28402-9025, 910/343-0161 ext. 312

## *September 25-27*

### **Multidisciplinary Cardiovascular**

### **Conference and Organ Symposium**

Info: Duke Heart Center, 919/681-4278, fax: 919/681-7953

## *September 26-27*

### **3rd Annual George T. Wolff, MD,**

### **Primary Care Symposium**

Place: Greensboro

Credit: 9 hours, AMA Category 1 and AAFP

Info: Office of CME, Greensboro AHEC, 910/574-7795, fax: 910/574-7591, e-mail: pgr@med.unc.edu

## *September 26-28*

### **4th Annual Meeting: NC and SC Chapters,**

### **American College of Cardiology**

Place: Grove Park Inn Resort, Asheville

Credit: 7 hours Category 1, AMA

Fee: NC-SC ACC members: \$155, nonmembers: \$200, affiliates and residents: free

Info: NC-ACC, 4101 Lake Boone Trail, Suite 201, Raleigh 27607, 919/787-5181, fax: 919/787-4916

## *September 27*

### **Duke Heart Center Lecture**

Place: Duke Hospital North

Info: Duke Heart Center, 919/681-4278,

fax: 919/681-7953

## *October 15-19*

### **Infectious Disease '97 Board Review**

Place: Ritz-Carlton, Tysons Corner, McLean, VA

Fee: \$895: physicians, \$695: physicians-in-training

Credit: 36 hours Category 1, AMA

Info: Center for Bio-Medical Communications, Inc., 80 W. Madison Ave., Dumont, NJ 07628, 201/385-8080, fax: 201/385-5650, e-mail: cbcbiomed@aol.com

## *October 19-21*

### **16th Annual Science Reporters Conference**

Place: Sheraton Washington Hotel, Washington, DC

Info: American Medical Association, Department of Science News 312/464-5374 or -5904, <http://www.ama-assn.org>

## *October 23-26*

### **Medicine for the Third World Traveler**

Place: School of the Environment, Duke University, Durham

Credit: 27 hours Category 1, AMA

Fee: \$450

Info: 919/613-8082, fax: 919/684-8751, e-mail: britt@duke.edu

## *October 24*

### **Domestic Violence: Building a Stronger**

### **Health Care/Community Response**

Place: Friday Center, UNC-Chapel Hill

Credit: 6 hours Category 1, AMA

Fee: \$75

Info: sponsored by UNC Hospitals' Beacon Program, UNC Injury Prevention Research Center, and UNC CME Office. Contact Deedra Donley, CME Office, UNC-Chapel Hill, 231 MacNider Bldg., CB# 7000, Chapel Hill 27599-7000, 919/962-2118. Registration deadline: Oct. 15. *See page 377 for more info.*

## *October 30-November 1*

### **2nd Annual Integrating Mind, Body, and**

### **Spirit in Medical Practice Conference**

Place: Sheraton Imperial Hotel, Research Triangle Park

Fee: by 9/15—physicians: \$495, nonphysicians: \$395; after 9/15—physicians: \$520, nonphysicians: \$420

Info: sponsored by Duke Hospital Education, Box 3883 DUMC, Durham 27710, fax: 919/681-6251, <http://www2.mc.duke.edu/depts/npcjs/edu/index.html>

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## Aphorisms of the Month

Daniel J. Sexton, MD, Section Editor

### "Assorted Witticisms, Barbs, and Insults"\*

After all is said and done, more is said than done.

—Anonymous

I will always cherish the initial misconceptions I had about you.

—Anonymous

When ideas fail, words come in very handy. —Goethe

A little inaccuracy sometimes saves tons of explanations.

—H.H. Munro

One of the symptoms of an approaching nervous breakdown is the belief that one's work is terribly important.

—Bertrand Russell

I was gratified to be able to answer promptly. I said I don't know.

—Mark Twain

Computers are useless. They can only give you answers.

—Pablo Picasso

Even if you are on the right track, you'll get run over if you just sit there.

—Will Rogers

The covers of this book are too far apart.

—Ambrose Bierce

The trouble with the rat race is that even if you win, you are still a rat.

—Lily Tomlin

\* Submitted by H. Royster Chamblee, Jr., MD, Raleigh

Send aphorisms to Dr. Sexton at: Box 3605, Duke University Medical Center, Durham, NC 27710.  
fax: 919/684-8358, e-mail: sexto002@mc.duke.edu

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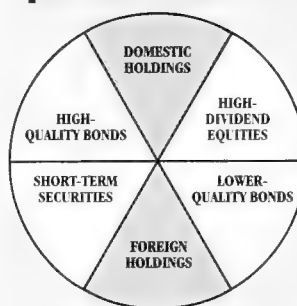
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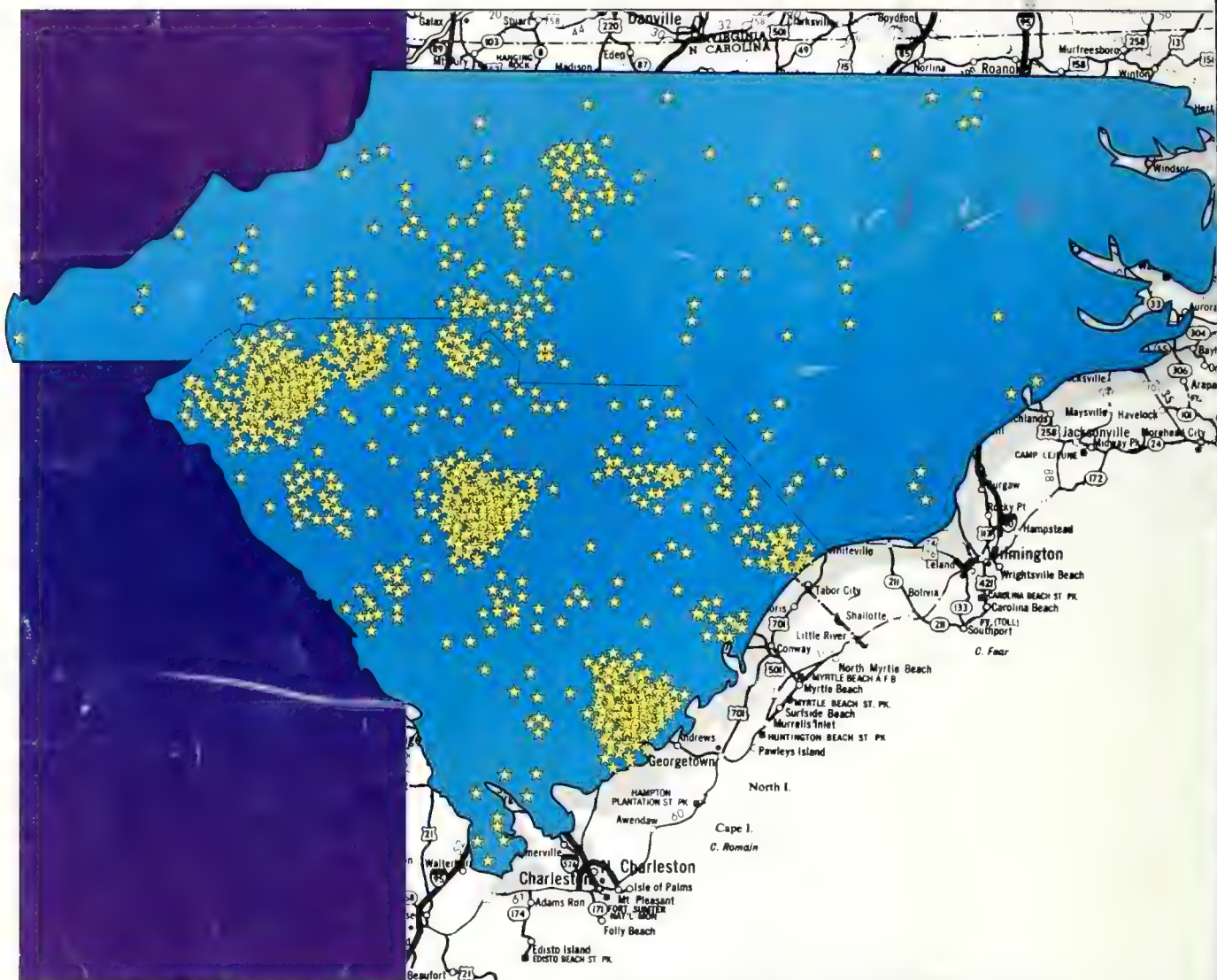
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Volume 58  
Number 6

# North Carolina Medical Journal

## For Doctors and Their Patients




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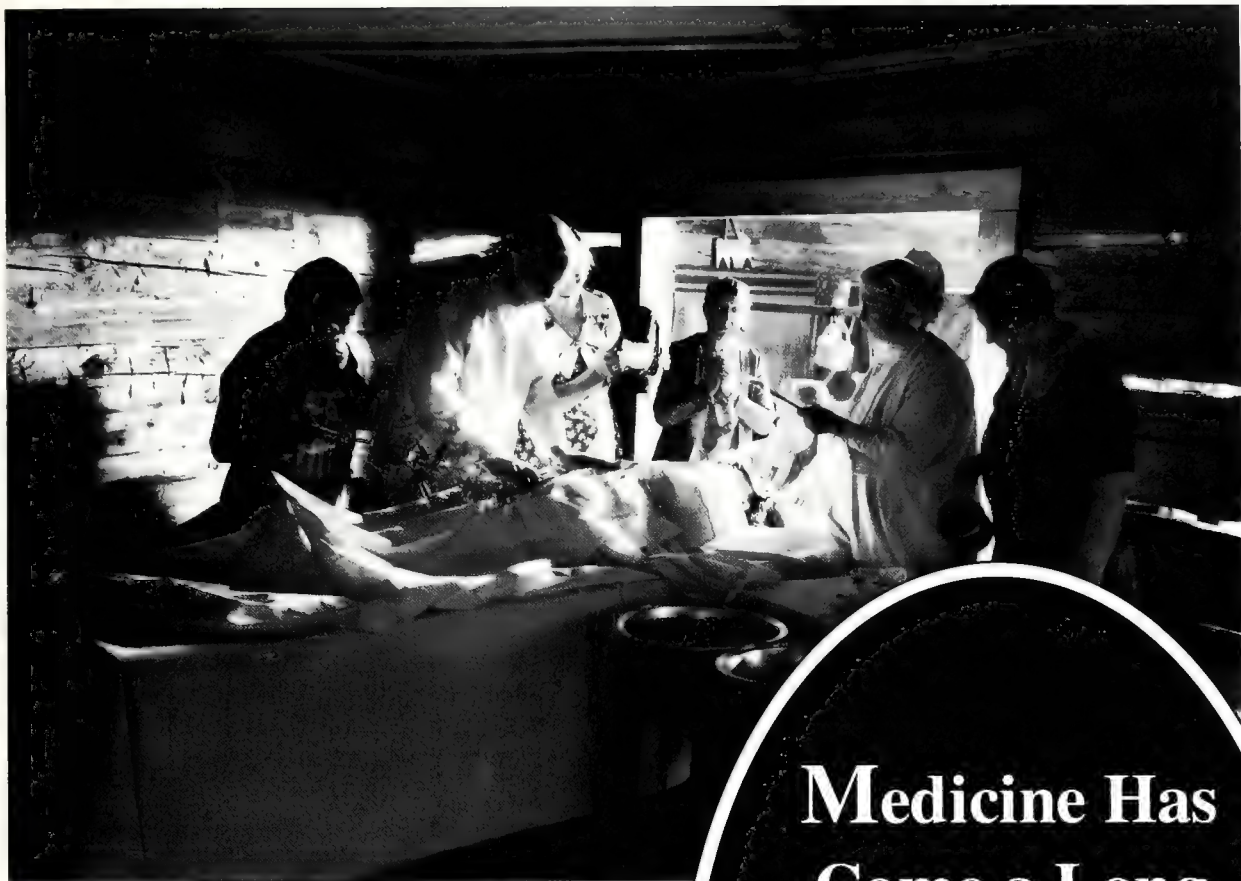
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# North Carolina Medical Journal

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**For Doctors and their Patients**

**November/December 1997, Volume 58, Number 6**

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# Letters to the Editor



## A Journey Down Memory Lane

### To the Editor:

I especially enjoyed the September/October *Journal*. I have never seen so much material packed into the pages.

One paper that brought back memories was the excellent article by Dr. Charles Wooley about Dr. Gene Stead (NC Med J 1997;58:379-81). I suppose no one outside of Duke University admires Dr. Stead more than I, but what I enjoyed were the reminiscences about Jim Warren, who was a classmate of mine at Harvard, and the various other people who served with Dr. Stead and with Soma Weiss, who was at the Brigham when I was there as a surgical intern.

Dr. Wooley did an excellent job—in an informal way—in telling what Dr. Stead has meant to medicine in general, to internal medicine in particular, and to North Carolina.

Eben Alexander, Jr., MD, *Journal* Associate Editor  
Emeritus Professor of Neurosurgery  
Bowman Gray School of Medicine  
Medical Center Boulevard  
Winston-Salem, NC 27157-1029

## Reader Reflects on Caring for the Terminally Ill

### To the Editor:

Alan Shapiro's essay, "The Compromise of Compassionate Care" (NC Med J 1997;58:332-9), certainly encourages us to reflect on where we fit in the spectrum of caring for the terminally ill. On my office wall is an etching, "Life's Great Moments," that portrays a physician examining a patient. The caption reads, "I am ecstatic! You have yellow fever—It's the first time that I have ever had the good luck to attend it!" I have it there so that I will not forget that we never treat just a disease process, but rather a patient who has the disease.

Given the advancements in medicine, it is easy to become technophiles, and to look for yet another protocol to place a patient on as we strive—in oncology as in all Medicine—to put off the inevitable, death. We physicians must realize that this is not a game we can win; the outcome is inevitable. All that we really have is the privilege of assisting patients in various phases of their lives. Some we are able to restore to good health. Others require the integrity and honesty to admit that we are unable to treat their cancer. This reveals—to the patient and to us—that in one sense we have failed in that narrow task, and that we are human. Unfortunately, our inadequacy sometimes becomes very real. Our tendency then is to start doing things *to* the patient *not for* the patient. At this point we should be treating the patient, not the disease.

I have two other wall hangings that illustrate how some

patients and physicians go through the process of dying with remarkable grace and peace. One is the Physician's Prayer, which concludes, "...and when they are not to be healed, let me help them to a deeper faith and resignation in your love." When a patient is dying, the physician needs to sit at the bedside, take the patient's hand, and offer comfort. When death is near, a patient's personal faith can offer more solace than anything we can say. The other wall hanging features the words of St. Francis of Assisi, "...O Divine Master, grant me that I may not so much seek to be consoled as to console, to be understood as to understand, to be loved as to love; for it is in giving that we receive, it is in pardoning that we are pardoned, it is in dying that we are born to eternal life."

We physicians need to recognize our own shortcomings. We need to be honest enough to admit that we are often more blessed by our patients than they are by us. We must extend as much vigor and dedication to helping them complete the journey as we do to helping them try to attain health. We should never do less.

James B. Hall, MD  
Director of Gynecologic Oncology  
Carolinas Medical Center, P.O. Box 32861  
Charlotte, NC 28232

## Domestic Abuse: A Social Ill in Need of a Cure

### To the Editor:

I applaud Dr. Peggy Goodman for providing *Journal* readers with a comprehensive and coherent overview of the pervasiveness and magnitude of domestic violence ("Not in My Practice: A Look at the Pervasiveness Consequences of Domestic Violence," NC Med J 1997;58:310-4). She issues a clarion call to practitioners of all specialties to watch for the often subtle signs and symptoms of this societal anomaly that may not be reflected by the patient's chief complaints.

It has been suggested that, among the various medical disciplines, pediatric professionals have a unique opportunity to serve as the vanguard in the battle against domestic violence.<sup>1</sup> During the past decade, the focus of general pediatrics has shifted from the child as an isolated entity to the child as a family member whose health and well-being is significantly affected by the myriad of variables that create that dynamic structure.<sup>2</sup> Although the pediatrician ostensibly serves as the primary provider for the child, by necessity there is likewise established a vicarious doctor-patient relationship with the mother. As we treat her child, we hopefully gain the mother's respect and trust and, in some cases, become her confidante. Recent data show that women of childbearing age are at increased statistical risk



for abuse, particularly during pregnancy and the postpartum period.<sup>3</sup> In a very real sense, pediatric providers may be the only health care professionals with whom a woman has any regular contact during these times.<sup>4</sup>

With this knowledge in mind, it seems imperative that those who primarily treat children be cognizant of the general warning signs of spousal abuse in the mothers of our patients. If those signs are present, physicians need to have an easily implementable protocol for preliminary intervention and/or referral. Viewing our role holistically, as well as practically, we can best serve the interests of the child and ensure appropriate growth and development by a genuine effort, when domestic abuse is suspected, to protect the mother.

I strongly concur with Dr. Goodman that the concept of domestic violence must be taken out of the social context and be viewed, first and foremost, as a medical problem; as a chronic disease state with frequent exacerbations that, when left untreated, worsens progressively and even metastasizes, ultimately placing the patient at extreme risk for permanent injury or death. Only when we address this problem as a potentially life-threatening pathology will we be able to affect a real cure. For now, however, doctors and other health care professionals simply need to start paying attention.

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## Curing Cancer Takes More Than Medicine

**Editor's note:** In the May/June *Journal*, Dr. William Hensel's article "Feeding Each Other" (*NC Med J* 1997;58:218) told the story of "Judy," a 54-year-old woman with inoperable squamous cell cancer of the throat. Overwhelmed by the prospect of dying, Judy agreed with Dr. Hensel's recommendation of palliative care, which involved enrolling in Beacon Place, a hospice in Greensboro. Judy's trepidation about going to "that home" was dispelled by the compassionate care she received there. Dr. Hensel updates us on an unusual change in Judy's condition.

### To the Editor:

Judy has experienced an unexpected side effect from the compassionate, life-affirming care that she has received at Beacon Place. Judy may be cured of her cancer.

Despite a long list of doctors, myself included, who pronounced Judy terminal, it now seems that the radiation therapy that was conceived as being palliative has sent Judy's neck cancer into remission. A recent CT scan of her neck shows no evidence of residual disease.

I could explain this surprising turn of events in different ways. Certainly, I could chide myself for poor prognostic abilities. Or, I could recite my mantra: "The practice of medicine is humbling." But I refuse to feel bad because of Judy's recovery. When I told Judy her cancer was in remission, she said that at the time her recurrent tumor was diagnosed, she had no reason to live and had given up. Judy gives credit for her recovery to God and to the good people at Beacon Place, where she rediscovered hope and her reason to live. Like Judy, I prefer to believe that it was more than just the radiation treatments that caused her remission. Whatever the explanation, all of us who have grown to love and admire Judy celebrate her recovery.

William A. Hensel, MD, Clinical Professor,  
UNC Department of Family Medicine  
Moses Cone Health System  
Family Medicine Residency Program  
1125 N. Church St.  
Greensboro, NC 27401-1007

## Worthy of a Wider Audience

### To the Editor:

I ask the *Journal's* permission to reproduce articles in the segment on physician impairment that appeared in the July/August 1996 issue (*NC Med J* 1996;57:196-245). The articles compellingly addressed this area of professional development.

I am course director for Medical Practice and the Community (MPAC), a two-year required component of the UNC-Chapel Hill School of Medicine curriculum. We would like to use the material in our course.

Michael C. Sharp, MD, MPAC Course Director  
CB# 7340, Chase Hall, UNC School of Medicine  
Chapel Hill, NC 27599-7340

### To the Editor:

I was most intrigued by the poem "Major Dysphagia" by Jeff Drayer that appeared in your May/June issue (*NC Med J* 1997;58:198-9). I am contributing editor of the journal of the Medical Association of South Africa, a not-for-profit organization dedicated to educating the family physician. This poem would be ideal for doctors to have as an aid in diagnosis. Would you allow us to reprint it?

In return, I will try to find a poem I wrote in my third year of dental school about the pathogenesis of syphilis, which you may find interesting and reprint if you so desire.

Fred N. Sanders, BDS, Contributing Editor  
*South African Medical Journal*  
Private Bag X1  
Pinelands, South Africa 7430  
fsanders@ct.lia.net via Internet

### From the Editor:

It is always satisfying to hear when readers consider *Journal* articles worthy of a wider audience. We have given Dr. Sharp and Dr. Sanders permission to reprint the articles and poem, respectively.

## Dr. Walter Kempner and the Rice Diet Program: Another Reason Why Durham is the City of Medicine

### *To the Editor:*

When Dr. Jim Davis realized that medical care had superseded tobacco as the main focus of life in Durham, he christened it the City of Medicine. I believe that that name was a stroke of genius. But when I think of what happened that made Davis's use of that term appropriate, I think of the late Walter Kempner.

When I came to Durham in 1947, Duke Hospital was a small, regional medical center. The Dean, Wilbur Davison, began Duke Medical School by recruiting a small cadre of doctors from Johns Hopkins. Their presence lent a luster of academic prowess to the early medical school, but it was the rise of Walter Kempner's Rice Diet program that really put Durham on the international map of medicine. Durham became the medical destination for more than 18,000 patients from all over the country and much of the world. I share here the evidence for that statement: the list of Kempner's patients, recently made available to me. The list reflects the profound impact of Kempner's regimen on conditions hitherto untreatable (like hypertension, congestive heart failure, atherosclerosis, diabetes) and its continuing legacy in the City of Medicine.

Sadly, Dr. Kempner passed away September 27. Born in Berlin in 1903, he died at the age of 94.

Eugene A. Stead, Jr., MD

First City of Medicine award recipient, 1988

Editor Emeritus, *North Carolina Medical Journal*

Professor Emeritus, Duke University Medical Center

### Geographic distribution of Dr. Kempner's Rice Diet program patients during his career at Duke

International		United States	
Austria	2	AK	13
Belgium	1	AL	148
Canada	302	AR	66
Caribbean	41	AK	44
Cen. America	33	CA	534
Cyprus	14	CO	73
France	6	CT	321
Germany	5	DE	33
Greece	9	FL	2620
Hong Kong	2	GA	468
Italy	6	HI	10
India	1	ID	3
Japan	2	IL	970
Middle East	33	IN	172
Mexico	79	IA	54
Netherlands	1	KS	51
New Zealand	1	KY	195
Philippines	2	LA	194
Puerto Rico	70	ME	33
S. Africa	2	MD	292
S. America	137	MA	348
Spain	2	MI	323
Sweden	1	MN	62
Switzerland	3	MI	67
U. Kingdom	13	MO	104
Yugoslavia	1	MT	10
		NE	51
		NV	42
		NH	27
		NJ	1196
		NM	18
		NY	3518
		NC	1646
		OH	401
		OK	91
		OR	19
		PA	736
		RI	41
		SC	371
		SD	11
		TN	337
		TX	614
		UT	6
		VT	23
		VA	721
		WA	32
		WV	167
		WI	100
		WY	7
		<b>USA</b>	<b>17383</b>
		<b>INTL</b>	<b>769</b>
		<b>TOTAL</b>	<b>18152</b>

### Address Labels Mar September/October Front Cover

**Editor's note:** Readers may have noticed their address labels glued on the front cover of the September/October *Journal*, a production technique common to many publications. Customarily, address labels are positioned on the back of the *NCMS Bulletin*, which mails with the *Journal* in a clear plastic bag (called a polybag). The *Bulletin* was not published in September, however; instead, the *Journal* mailed with the *Roster* to save on mailing costs. This alteration resulted in the unfortunate placement of the label on the face of the victim of domestic violence pictured on the *Journal*. Tim Steinbeck, sales manager for our printer, The Ovid Bell Press, comments:

### *To the Editor:*

I want to tender my apologies for the label placement on the recent combined mailing of the *North Carolina Medical Journal* and the *North Carolina Medical Society Roster*. Due to equipment restrictions on our end with placing the two publications in a polybag, we only had one choice for label placement, which was the unbound, or right side of the *Journal*.

Under normal circumstances, the label would go on the *NCMS Bulletin*, and the *Journal* cover would not be obscured. In this instance, because of the *Roster's* size and bulk, we had

to feed the *Roster* into the polybag first, which left labeling the *Journal* as our only alternative.

We have always been pleased with the business relationship we have had with the *North Carolina Medical Society*, and I'll endeavor to make things work smoothly now and in the future. We can certainly discover how to fix this problem before next year's combined mailing.

Tim Steinbeck, Sales Manager  
The Ovid Bell Press, Fulton, MO 65251

**Guidelines for Letters:** Type and double space all letters. Keep length to under 500 words. We welcome longer letters, and we may publish them as commentaries. We reserve the right to edit and abridge text. Send letters to: *NC Medical Journal*, Box 3910, DUMC, Durham, NC 27710, 919/286-6410, fax: 919/286-9219, e-mail: yohn0001@mc.duke.edu



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Please let us know what you think of our website. We welcome comments by mail (Attn: Jeanne Yohn, Managing Editor, Box 3910, Duke University Medical Center, Durham, NC 27710), fax: 919/286-9219, or e-mail: [yohn0001@mc.duke.edu](mailto:yohn0001@mc.duke.edu)

### *Dear Manuscript Reviewers:*

*We greatly appreciate the time you took out of your busy schedules this year to evaluate articles for the Journal...*

...your commentaries were essential parts of the prepublication process. They maintained our editorial accuracy and integrity and solidified our permanent status as a peer-reviewed journal. Your remarks primarily assisted our editor, and, in many cases, helped our authors become better writers.

You reviewed articles for free, but your efforts were priceless. Some of you just let us know whether or not you'd read a certain article if we published it; others sent lengthy and quite thoughtful critiques. A few commentaries were so comprehensive that we published them alongside articles as editorial copy.

We salute our 1997 reviewers, listed below, and encourage more *Journal* readers to join their ranks. Just drop us a note, fax, or e-mail. Agreeing to evaluate a manuscript enables you give your two cents' worth—and then some—about what we publish in the *Journal*.

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# Next Generation Telemedicine

## The Future is Now

Douglas S. Harr, PhD, David C. Balch, MA, and Michael E. McConnell, MD

The information age is pushing all sectors—industry, commerce, education, and entertainment—in new directions. Information processing, data storage, and exchange are transforming the way all of America does business. The health care industry has been slow to respond to the information revolution. Now it needs to take great strides to keep pace with advancements elsewhere.<sup>1</sup>

Fortunately, this means the health care industry stands at the door of technological opportunity. Doctors who pass through this door will enhance the quality of medicine for generations. They have the potential to increase access to care, improve clinical efficiency, streamline productivity and, most importantly, improve the quality of patient care. Experimentation with various technical models will test the market for sustainable telemedicine. The model developed at East Carolina University School of Medicine (ECU) has received national attention and is rapidly evolving into a viable economic model for managed care.

Telemedicine at ECU began in 1992 with the provision of interactive patient consultation to the North Carolina Department of Corrections at Central Prison in Raleigh, 100 miles away. This project is one of only three of its kind in the nation. Today, ECU has become an internationally recognized leader in telemedicine by developing active clinical and education programs with rural hospitals and practitioners in eastern North Carolina. Clinical applications of telemedicine are now present in 40 states, and some authors speculate that most United States physicians will have some involvement with clinical telemedicine by the year 2000.<sup>2</sup> The number of national sites planning interactive video consultation and reports continues to rise. Electronic medical networks are being developed in most states.<sup>2</sup>

### Clinical Applications of Telemedicine

The ECU clinical outreach program uses the Rural Eastern Carolina Health Network (REACH-TV), which is currently connected to 12 sites (Figure 1, next page). Physicians from 31 different medical specialties have used this network to conduct more than 1900 consultations. Sitting at the School of Medicine, physicians can discuss clinical problems with physicians and patients at any of the 12 remote sites (where a physician or a specially trained nurse aids in presenting the patient to the consultant across the network—for example, providing vital signs or an evaluation of the precordial and peripheral pulses for cardiology consultations). Then the nurse places an electronic stethoscope to transmit auscultatory findings (a volume control adds to the utility of the auscultation). The consultant may also use an ophthalmoscope, otoscope, dermoscope, or even ultrasound. Ultrasound images are transmitted as real-time motion video at 30 frames per second.

Telemedicine has improved access to care for rural patients. Pediatric cardiology patients and their parents can receive specialty care without having to travel and negotiate new city environments. More than 60 pediatric cardiology consultations have been successfully completed via telemedicine, leading to important diagnoses and recommendation for treatment, including surgery.

ECU dermatologists have made over 700 consultations. A recent study of dermatology teleconsultations between ECU in Greenville and the Central Prison in Raleigh<sup>3</sup> found that telemedicine consultations were as valuable as in-person consultations, and that teleconsultants were fully confident of their diagnoses and subsequent patient management decisions. Telemedicine consultation allows dermatologists to provide signifi-

Dr. Harr served as Telemedicine Project Manager at East Carolina University School of Medicine, and is now Director of Planning and Development for Home Technology Healthcare, *e-mail*: doharr@hthc.com. Mr. Balch and Dr. McConnell are affiliated with ECU's School of Medicine: Mr. Balch is Director of Telemedicine and the Center for Health Sciences Communication. Dr. McConnell is with the Department of Pediatrics (Cardiology). The authors' work is supported in part by grants from the Health Care Financing Administration, the Office of Rural Health Policy, and the National Telecommunications and Information Administration.



**Fig 1:** The Rural Eastern Carolina Health Network. Illustration by Alan Branigan, Medical Illustrator.

cant assistance to the primary care physicians without the need for patients to travel to the medical center. In some cases telemedicine provides specialty care to patients who would otherwise do without it.

## Community Benefits

In addition to the benefits to physicians and patients, telemedicine offers a number of important community benefits such as on-site educational programs for health professionals. Residents from ECU participate in a Rural Residency Program, living in a rural community while still having access to tertiary care consultants with whom they can discuss cases. Otoscope findings, radiology findings, and cardiac auscultatory findings can be discussed with the resident, providing educational feedback that previously was only available face-to-face.

North Carolina is blessed with an advanced telecommunication infrastructure unlike any other in the US. Networks already in place support a variety of distance education and telemedicine programs. The North Carolina Research and Education Network (NC-REN) provides two-way video conferences to approximately 40 sites across the state. The North

Carolina Information Highway (NCIH) provides conference capabilities to 128 additional sites. These networks offer on-line courses, seminars, and continued medical education. Distance education provides rural health facilities with needed medical education, conveniently brought to the individual workplace. Clinical practices are not disrupted because physicians and nurses need not travel for educational purposes. Hospitals and medical centers reap the direct benefits of reduced medical education expenses (and rural communities save the money that would otherwise pay for backup physician coverage).

A prototype emergency medicine consultation system provides 24-hour triage coverage for the Naval Hospital at Camp Lejeune, Pungo District Hospital at Belhaven, and Bertie Memorial Hospital at Windsor. The network supports real-time transmission of high-resolution radiographs at two of these triage sites, and full-motion video consultation at all three.

## State-of-the-Art Technology

A primary component of telemedicine at ECU is the optimized workspace in which specialty consultants interact with patients



at rural outreach sites. The four consultation rooms are customized, 6-x-12 foot modular booths equipped with a digital stethoscope, television monitors, motorized cameras, CODEC (converts continuous electrical signals into digital information) and touch-screen control panels with interactive video (Figure 2, below). The modules can accommodate two people, the specialist consultant and a technician or medical student. The modules can send or receive any program on the NCREN statewide network, the Rural Eastern Carolina Health Television Network, or North Carolina Information Highway. The modules support both distance education and telemedicine activities. The ECU telemedicine modules provide state-of-the-art clinical technology, and have been recognized by *INFOWORLD* magazine and the Henry Ford Health Care Systems as among the most innovative technology applications in health care. This applied use of telemedicine technology has increased access to medical care in eastern North Carolina.

## A New Practice Model

The swiftly emerging field of telemedicine has increased the need for a new clinical practice model using advanced communication technology to enhance patient care. What we need most are cost-effective and useful ways to link health care providers and patients.<sup>4</sup> The Distributed Medical Intelligence model, pioneered at ECU, has the potential to extend effective communication technologies. It incorporates audio, high-resolution still images, video, and virtual reality tools into an integrated medical communication network.<sup>5</sup> In the future we will use World Wide Web technology (on a secure infrastructure [Intranet]), and other low-cost technology to deploy medical knowledge to points of need.

At ECU, several components of the Distributed Medical Intelligence model are currently under testing. There are three main parts: 1) the care portal, 2) the docking station, and 3) the bridge. The care portal denotes either a patient or physician in need of care or medical information—at ECU the rural sites represent care portals. The docking station signifies a site of medical expertise and consultation, represented at ECU by the telemedicine consultation booths. The bridge is a medical communication hub, which optimizes information flow between the docking station and the care portals; it is a multifaceted system of communication and information technologies that “bridge” the patient to the provider.

The growth of the Internet has created a window of opportunity for medicine. We already have

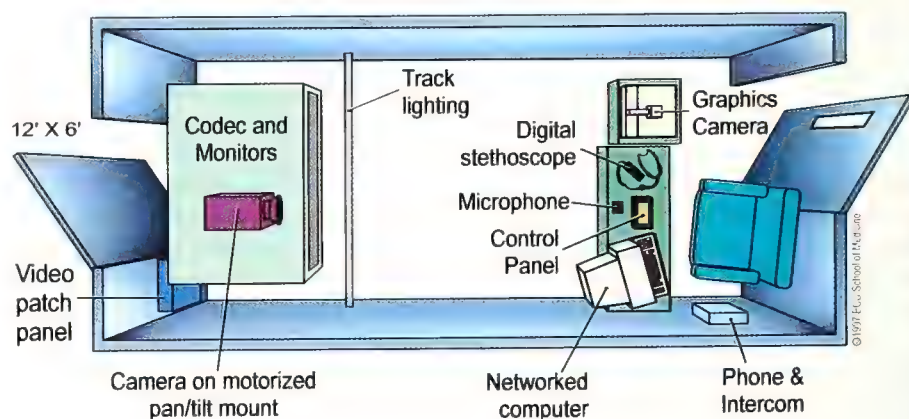
the tools to develop an intelligent “Medical Communications Matrix” for use in health care, communication, and education.<sup>6</sup> The Med-Wide-Web is a way to help emerging technologies deliver quality medical services without the concern of time or distance. The Med-Wide-Web is a secure medical communication infrastructure using Web-compliant interface and communication protocols. When we speak of the “Webification of medicine” we refer to the use of a ubiquitous interface that allows specific medical process functions to work across all platforms and networks. This approach uses various Web tools of the emerging nationwide telecommunications infrastructure. The community of health care professionals is in an opportune position to seize the capabilities and communicative power the Web can now provide. The Med-Wide-Web will give the medical profession world accessibility, expanded knowledge tools, and communication resources.

## Education and Training in Telemedicine

Personalized training about current and future telemedicine technologies is available at ECU. Participants in the training program develop a customized curriculum that provides a behind-the-scenes look at telemedicine technology. A wide array of topics are available, including training in technical, administrative, legal, and clinical applications. Participants have the opportunity to explore a successful telemedicine program in action. For more information on educational opportunities at ECU call 800/816-3859 or visit the website: <http://www.telemmed.med.ecu.edu>

## The Benefits of Telemedicine Care

The ECU telemedicine program has improved access to care for hundreds of patients in rural areas. Rural physicians can reach medical specialists, enabling them to make more accurate



**Fig 2:** Telemedicine module, East Carolina School of Medicine. Illustration by Alan Branigan, Medical Illustrator.

assessments for patient management. Emergency physicians can get swift consultation to determine the need for trauma team mobilization or air evacuation. By reducing the need for helicopter transport, telemedicine can greatly reduce the cost of emergency care. A recent cost analysis of teleradiology for emergency computerized tomography connected two spiral CT scanners at a university hospital and linked them to the remote hospital. The study found a significant reduction in the cost of emergency care.<sup>7</sup> Over 13 months, there were 121 emergency examinations of 116 patients; the result was fast and reliable care that was less expensive than transporting films by ground or air.

The efficacy of telemedicine has only begun to reveal itself. As the demand grows, the cost of telemedicine technology will drop. Physicians and patients will find the quality of life improved as telemedicine provides greater access to care.

## The Future

ECU and Pitt County Memorial Hospital continue to integrate patient information and management tools into their network. The School of Medicine will test and introduce virtual reality tools into the telemedicine environment. Virtual reality will let telemedicine physicians "feel" pulses, muscle tone, or precordial activity. ECU will continue to scale down the technology and expand its hybrid network into rural hospitals and medical centers. It will bring telemedicine into homes with a new TeleHome program. Real-time telemedicine consultations will be supplemented with store-and-forward consultations. We are working on a system of health delivery that will allow patients to securely transmit their medical histories to physicians many miles away. High-speed bandwidth telecommunications lines, and the use of Internet and Web-based applications, will promote the delivery of state-of-the-art medicine in a cost-effective manner to patients anywhere in the world. □

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# The Good Telemedicine Can We Avoid the Bad and the Ugly?

George C. Barrett, MD

President, North Carolina Medical Board, Raleigh

"Next Generation Telemedicine" describes accurately how telemedicine can enhance the quality of health care in rural areas. It typifies the commitment East Carolina University School of Medicine (ECU) has made to the patients in its area. Harr et al recognize what is frequently overlooked: technology cannot replace medical expertise, but it can enhance it. The doctor must go through the door of technology if the patient is to benefit.

That physicians and patients accept telemedicine is evidenced by a report from Bloom.<sup>1</sup> She surveyed 14 patients and family members, and seven health care providers in the Program on Aging at the University of North Carolina at Chapel Hill (UNC-CH). She found no negative feelings about encounters via telemedicine, and concluded that patients felt "freer to speak and less intimidated," which enhanced communication between patient and physician. Simultaneously involvement of patient, referring physician, and specialist improved communication and possibly care. Bloom believes that a broadcast quality, large-screen format is important because it creates intimacy and immediacy, simulating a face-to-face encounter.

Opportunities for consultation with specialists, immediate review of imaging studies by a subspecialist, digital mammography, psychiatric care, video conferencing, virtual-reality physical examinations, and robotic laparoscopic procedures are but a few possibilities of telemedicine available or in the offing.

The cutting edge technology provided to rural North Carolinians by ECU and UNC-CH now operates in a virtually ideal physical and intellectual environment: Reimbursement is not an immediate problem (there is grant support); there are patients whose conditions warrant specialized care; there are local physicians who seek guidance; the consultants are licensed and resident in our state; faculty status, institutional guidance, and geography combine to eliminate "turf" issues; and education is an immediate byproduct. This is "good" telemedicine, but in the future certain managerial, legal, reimbursement, technical, policy, evaluation, and human issues must be addressed if telemedicine is to achieve its full potential (or even maintain the initial success reported in our state).

Legal issues cited as particular concerns by the Center for Telemedicine Law include: When should a physician in a distant state be licensed? What obligations will accompany licensure? What will we do about confi-

*Continued*



dentiality and transmission standards? How will reimbursement be handled? Will we need separate CPT codes? Is telemedicine equipment a "medical device" subject to FDA regulation? One unaddressed question is whether a physician/patient relationship is established during a telemedicine encounter.

The public often thinks that it is protected from incompetent physicians by requiring a license to practice medicine in this or any state. This is not so. A license only documents education and training through one postgraduate year. Credentialing and competence to practice beyond that first postgraduate year is largely determined at the community level. Protecting the public from poor care via telemedicine will also depend largely on communities rather than regulatory agencies. Requiring physicians to be licensed in every state in which they wish to practice telemedicine imposes a burden that might be removed by a limited federal permit, possibly issued by the Federal Communication Commission. Without such a permit, no telecommunication activity would be permitted, thus no reimbursement allowed.

North Carolina has a unique opportunity to avail itself of the superb beginnings of infrastructure as outlined in Harr's article. The profession must avoid "turf battles" and be open to new ways to ensure that patients have access to care.

Credentialing institutions must set high standards for their local and distant staff. We must never assume that the "lowest bidder" offering services is as qualified as a local provider, or that telemedicine is cost-effective just because it is telemedicine.

As we travel up the on-ramp of the information highway, we must be sensitive to the inevitability of fraud. We must create a framework for evaluating costs, clinical quality, and patient acceptance. We must develop distant services according to the needs of population served, not the desire for profit. The integrity of physicians, administrators, and the trustees of our community institutions will determine whether we avoid the bad and the ugly telemedicine. It is in our hands.

Virtual reality may be wonderful, but someone must always actually "touch" the patient. That will be the physician who knows about the person in the ill body. Technology will never eliminate the need for good doctors to know the persons who are their patients. □

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# Oral Contraceptive Pills

## Prevention of Ovarian Cancer and Other Benefits

Andrew Berchuck, MD, and Joellen Schildkraut, PhD

Suppose there was a pill, one that had been given safely to millions of women over the course of 35 years, that could cut in half a woman's risk of breast cancer. We would expect most women to know about it. There is such a pill for ovarian cancer, but most women don't know about it. Because of the high incidence of breast cancer in the United States and the relatively good survival rate, many affected women "live to lobby" for breast cancer awareness and research. In contrast, ovarian cancer is less common and survival is poor. In fact, ovarian cancer is sometimes called the "silent killer" because it causes few symptoms until it has spread widely. The name also fits because ovarian cancer "silences" the voices of most affected women. With the notable exception of the comedian Gilda Radner and her husband actor Gene Wilder, few victims have actively crusaded against this disease. Maybe this is one reason why most women don't know that use of oral contraceptives protects against the development of ovarian cancer.

### Ovarian Cancer

Each year about 25,000 new cases of ovarian cancer are diagnosed in the US. Most of these cancers arise in the single layer of epithelial cells that covers the surface of the ovary or lines underlying inclusion cysts.<sup>1</sup> There are several significant obstacles to early detection of epithelial ovarian cancer: 1) No preinvasive phase (similar to carcinoma-in-situ of the cervix or polyps of the colon) has been defined. 2) The ovaries lie within the peritoneum, making them relatively inaccessible to examination. 3) Ovarian tumors produce few alarming symptoms, so most patients do not seek medical attention

until ascites causes abdominal enlargement and gastrointestinal discomfort. 4) Even after symptoms appear, ovarian cancer can be difficult to diagnose and patients may consult several physicians before an ovarian mass is detected.

More than 80% of patients with cancer confined to the ovary and completely resectable survive five years or longer. Adjuvant chemotherapy may be given, but it is not clear that this improves survival. Unfortunately, few patients are diagnosed at such an early stage; most already have diffuse intraperitoneal metastases at diagnosis. Treatment then consists of resecting the primary tumor, surgically debulking intraperitoneal metastases, and administering combination chemotherapy.<sup>1</sup> A number of cytotoxic drugs are used to treat ovarian cancer, including cisplatin, carboplatin, paclitaxel, and topotecan. Striking regression of visible intraperitoneal metastases occurs in more than 70% of cases, but residual disease usually persists. The median survival of patients with metastatic ovarian cancer now exceeds three years, but only 10%-20% are cured (Table 1, below). Because ovarian cancers have such a high initial response to chemotherapy, we can realistically hope for the development of additional treatments that will translate into higher cure rates in the future.

Screening to detect disease at an early, curable stage offers another approach to improving survival of patients with ovarian cancer.<sup>2</sup> Imaging the ovaries with transvaginal ultrasound and measuring blood levels of the CA 125 tumor marker have been advocated as screening modalities. Unfortunately, these tests are not sensitive or specific enough for cost-effective popula-

**Table 1. Clinical features of ovarian cancer**

- ◆ Most cancers arise in the ovarian epithelium.
- ◆ There is no effective screening test for ovarian cancer.
- ◆ There are few symptoms early in the course of disease.
- ◆ Most patients have widespread metastases at diagnosis.
- ◆ Chemotherapy prolongs survival but does not cure.
- ◆ Only 30% of all patients survive the disease.

The authors are affiliated with Duke University Medical Center, Durham: Dr. Berchuck is Professor, Division of Gynecologic Oncology, Department of Obstetrics and Gynecology, and Dr. Schildkraut is Assistant Professor, Department of Community and Family Medicine, Program of Cancer Prevention, Detection and Control Research.

tion screening, although some women do request that they be screened. The problem is that about 3% of women over age 50 have elevated levels of the CA 125 tumor marker, although only one of every 30-40 women with an elevated level has ovarian cancer. Screening would mean that all—even those with “false-positive” results—would undergo expensive diagnostic evaluations. Similarly, most enlarged ovaries detected by ultrasound are not cancerous. Several large prospective trials exploring the utility of CA 125 and ultrasound are under way but, in the interim, screening is not recommended except in women who carry mutated cancer susceptibility genes such as BRCA1 or BRCA2.<sup>3,4</sup> The lifetime risk of ovarian cancer in women with such mutated genes is so high that some women elect prophylactic oophorectomy; in those who retain ovaries, annual measurement of CA 125 and ultrasound scan seem reasonable.

Overall, the poor survival of women who develop ovarian cancer and the present uncertainty about screening tests means that prevention may be the most effective means of reducing ovarian cancer mortality.

## Preventing Ovarian and Endometrial Cancer

A recent study at Yale University revealed that only a small minority of women knew that use of oral contraceptives (“the pill”) can protect against ovarian cancer,<sup>5</sup> even though such protection has been convincingly demonstrated in epidemiologic studies.<sup>6,7</sup> The CASH study, a case-control study performed in the United States in the early 1980s, examined the relationship between breast, ovarian and endometrial cancers and oral contraceptive use.<sup>8</sup> This population-based study conducted through the Surveillance, Epidemiology and End Results program of the National Cancer Institute found that the risk of ovarian cancer was 40% lower in women who had used the pill compared to those who had not. The CASH and other studies have shown that the magnitude of the protective effect is related to duration of usage: there is a modest protective effect after three to six months, but a 60%-80% decrease in risk after more than 10 years of pill use. The protective effect appears to last for at least 15 years after pill use is discontinued. Because the CASH study looked only at women age 20-54, it was not clear that the findings could be extrapolated to the general population. Recently, Whittemore and colleagues analyzed the data from 12 US case-control studies.<sup>9</sup> They found that any use of oral contraceptives was associated with an 11% reduction in risk per year of use.

The CASH and other studies have demonstrated that use of the pill also decreases the incidence of endometrial cancer by about 50%.<sup>6,10</sup> There is a relationship between duration of pill use and the magnitude of the protective effect. Since most endometrial cancers are detected at an early stage and survival is relatively good, preventing endometrial cancer would have less of an impact on cancer mortality than prevention of more lethal ovarian cancers.

The average parity of women in this country has been decreasing during the past several decades. This ought to have increased the incidence of both ovarian and endometrial cancers,<sup>5</sup> but no increase has been seen, perhaps because many women have used the pill. More widespread use might decrease the incidence of these cancers even further, but some commentators have expressed concern that no studies have followed subjects long enough to exclude the possibility that the pill simply delays the onset of disease. That possibility cannot be excluded, but available data strongly suggest that the pill actually decreases lifetime risk.

## The Benefits of Pill Use

The pill is used primarily to prevent pregnancy, but healthy reproductive-age women who use the pill have lower mortality rates than women who use other methods of contraception.<sup>7</sup> Not only does the pill decrease the risk of ovarian and endometrial cancers, but its high contraceptive efficacy leads to fewer deaths from sequelae of ectopic pregnancy or abortion. Despite the tremendous decline in mortality associated with childbirth during this century, women are more likely to die from complications of pregnancy than those attributable to the pill. It is “safer” to take the pill than to have unprotected sexual intercourse.

Women who use the pill are less likely to develop pelvic inflammatory disease, which rarely is fatal but often leads to infertility due to scarring of the fallopian tubes.<sup>7</sup> It is thought that the pill prevents pelvic infection by making cervical mucus less conducive to growth and upward mobility of pathogenic bacteria, and by reducing the flow of menstrual blood, which may provide a culture media for these bacteria. Since women with pelvic inflammatory disease often need hospitalization for intravenous antibiotics, reducing the incidence of infection is appealing from both a public health and economic perspective.

Several other less serious (from the standpoint of mortality) conditions are attenuated by the pill (Table 2, below).<sup>7</sup> The most common cause of anemia in menstruating women is iron deficiency. Because the pill decreases average menstrual blood

**Table 2. Diseases prevented by oral contraceptive pills**

<b>Definite protection</b>	<b>Possible protection</b>
Ovarian cancer	Uterine fibroids
Endometrial cancer	Rheumatoid arthritis
Ectopic pregnancy	Toxic shock syndrome
Pelvic infection	Osteoporosis
Iron deficiency anemia	
Dysmenorrhea	
Benign ovarian cysts	
Benign breast disease	
Acne	



loss, marrow iron stores are less likely to be depleted. This benefit is particularly important in underdeveloped countries where iron intake is often deficient. It is important to remember that the pill prevents dysmenorrhea and other symptoms associated with ovulatory menstrual cycles. These symptoms vary widely among women, but can cause significant discomfort and lost productivity. In addition, the pill decreases the incidence of ovarian cysts. Although most of these common, "functional" cysts resolve spontaneously, many women have them surgically removed. The pill also decreases the incidence of benign breast disease, another common condition that leads to surgery. Finally, use of the pill (in concert with other medications) can decrease the severity of acne.

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"...each full-term pregnancy decreases the risk of ovarian cancer...women with three or more children have half the risk of women who have never been pregnant."

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## Safety of the Pill

In their initial formulations, oral contraceptive pills increased the risk of cardiovascular disease including stroke and myocardial infarction,<sup>7</sup> particularly in older women who smoked cigarettes. Today, the doses of estrogen and progestin have been decreased by five- to 10-fold. Low-dose oral contraceptive pills do not significantly increase the risk of cardiovascular disease in healthy nonsmokers, and are considered safe for healthy, nonsmoking women even in their 40s.<sup>7</sup>

Many women worry that the pill will increase the risk of cancer.<sup>6,7</sup> Early studies did suggest a possible link between pill use and liver tumors, but later, rigorously designed studies have not confirmed this. However, the CASH and other studies suggest that, even after controlling for confounding factors such as number of sexual partners and cigarette use, pill users have an increased risk of cervical cancer. Even so, there are three times more deaths from ovarian cancer than from cervical cancer in the US, and we have an effective screening test for cervical cancer. We continue to advocate use of the pill, but recommend that women who do so return annually for pelvic examinations and Pap smears.

Finally, there has been a suggestion that pill use increases the risk of breast cancer, although some large studies have been reassuring.<sup>6,7,11,12</sup> The available data suggest that any breast cancer effect must be either very small or confined to specific subsets of women. It is possible that long-term oral contraceptive use, while not directly inducing breast cancer, promotes its earlier development in susceptible hosts, such as women who carry breast cancer susceptibility genes like BRCA1 and

BRCA2.<sup>4</sup> What we really need are studies of the effects of the pill on breast cancer risk in well-defined cohorts of women with normal and increased genetic susceptibility.

## Ovulation and Ovarian Cancer

The pill appears to protect against ovarian cancer by inhibiting ovulation, the primary mechanism by which it prevents pregnancy.<sup>13</sup> Other events that prevent ovulation (pregnancy and breastfeeding, for example) also protect against ovarian cancer. It is estimated that each full-term pregnancy decreases the risk of ovarian cancer by about 14%, so that women with three or more children have half the risk of women who have never been pregnant.<sup>9</sup> Several other observations support the premise that ovulation is causally related to the development of ovarian cancer: 1) epithelial ovarian cancer is exceedingly rare in women with Turner's syndrome, who have dysgenetic gonads and do not ovulate; 2) epithelial ovarian cancer is rare in animal species that ovulate only once a year; 3) hens, which lay an egg a day, are the only species except humans with a high incidence of epithelial ovarian cancer.

Several theories have been proposed to explain the link between ovulation and ovarian cancer:<sup>13</sup> 1) The high levels of gonadotropins and steroid hormones at ovulation may facilitate malignant transformation. 2) Ovulation may lead to entrapment of epithelial cells in the underlying stroma and subsequent formation of inclusion cysts. These cysts could serve as precursors for malignant transformation. 3) Proliferation of epithelial cells to repair the ovarian surface disrupted by ovulation could contribute to carcinogenesis by increasing the likelihood of spontaneous mutations. Mutations involving critical growth regulatory genes like the p53 tumor suppressor gene<sup>14,15</sup> could facilitate clonal expansion of premalignant cells which then become fully transformed. In support of this hypothesis, we recently found a strong association between total number of lifetime ovulations and mutation of the p53 gene in ovarian cancers.<sup>16</sup>

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"Using the pill for five years decreases the risk of ovarian cancer by 40%, but decreases lifetime ovulations by only about 15%."

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The pill may protect against ovarian cancer by preventing proliferation-associated mutations, but the magnitude of the protective effect is greater than would be expected if this were the sole mechanism. Using the pill for five years decreases the risk of ovarian cancer by 40%, but decreases lifetime ovulations by only about 15%. The protective effect of pregnancy also is greater than would be predicted by the number of ovulations

prevented. This suggests that factors other than prevention of proliferation-associated mutations contribute to the protective effect of inhibiting ovulation.

## A Strategy for Preventing Ovarian Cancer

Our society has undergone a significant shift in its "reproductive lifestyle." This is of concern with respect to the development of ovarian cancer. Before the industrialized societies arose over the past few hundred years, women were less well nourished, and had a relatively late onset of menarche and early menopause. In addition, because contraception was either not practiced or ineffective, most women were usually either pregnant or breastfeeding during the reproductive years. As a result, their total lifetime number of ovulations was relatively low. In contrast, the well nourished modern woman has earlier menarche, later menopause, low parity, and often does not breastfeed. This means that women in the US may ovulate more than 500 times during their lives. In addition, our increasing life expectancy means that large number of women reach age 60, the average age at which ovarian cancer is diagnosed. Since we have no effective screening tests and since survival of women with ovarian cancer is poor, the best strategy for preventing

ovarian cancer may be to advise women to avoid long periods of fruitless ovulation. The pill is the best present option for ovulation management from the contraceptive, cancer preventive, and other medical perspectives.

Although the development of highly effective oral contraception for women may be one of the great scientific developments of the 20th century, the general public has not fully appreciated its safety and its other health benefits. When the pill first became available 35 years ago, the very topic of contraception was taboo. The "sexual revolution" of the 1960s led to more open discussion, but the unpleasant side effects and dangerous cardiovascular complications of the early, high-dose pills led to a negative bias that unfortunately persists. Recently, contraception has become a major public health issue, in part because of the AIDS epidemic. Avoidance of promiscuity and use of condoms have been mainstays of public health campaigns about AIDS but, ironically, barrier contraceptives may not be best for many American women. In the US, monogamous women probably are at higher risk of developing ovarian cancer than AIDS. Ideally, each woman should choose a contraceptive based on an understanding of its efficacy as well as potential side effects and noncontraceptive risks and benefits. In view of their high contraceptive efficacy, safety and other health benefits, oral contraceptive pills represent an excellent choice for many women. □

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*Commentary, on next page*



## Commentary

Watson A. Bowes, Jr., MD, Professor,  
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Drs. Berchuck and Schildkraut summarize the evidence that oral contraceptive use reduces a woman's risk for developing ovarian and endometrial cancer. The risk of ovarian cancer appears to continue to decline the longer oral contraceptives are used. The authors list other health benefits attributed to the use of oral contraceptives (less pelvic infection, acne, benign breast disease, rheumatoid arthritis, and osteoporosis). We do not yet understand all the mechanisms by which risk for these conditions is reduced, but in the case of ovarian cancer it almost surely results from suppression of ovulation.

The authors summarize the safety record of current oral contraceptives. When first introduced in the 1950s, estrogen/progestin combinations produced a well-documented increased risk of thromboembolic disease. News of their thrombogenic potential tempered enthusiasm for birth control pills until lower doses of estrogen improved their safety.<sup>1</sup> That risk is minimized with modern dosage preparations.

No one doubts that oral steroids are the gold standard for contraceptive effectiveness. Rather, the evidence presented by Berchuck and Schildkraut raises the important question of whether oral contraceptives should be prescribed for *primary health promotion and disease prevention*, even when there is no need for contraception. Most noncontraceptive benefits of estrogen/progestin combinations have not been confirmed by prospective controlled trials. In fact, the retrospective studies that suggested positive benefits used relatively high-dose estrogen preparations. Presently, no data exist about whether there is a threshold dose that will provide these benefits. However, if prevention of ovarian cancer is simply a matter of ovulation suppression, the current low-dose regimens should be effective. Interestingly, manufacturers of birth control pills have not avoided promoting the noncontraceptive uses of their products. A recent ad for a norgestimate/ethinyl estradiol pill uses the eye-catching headline: "Announcing a birth control pill that's also a beauty aid."

Ovarian cancer is a formidable disease for which we have no effective screening tests and only discouragingly ineffective treatment options. Until prospective trials (which may never be conducted) provide convincing data about the relative risks and benefits of estrogen/progestin prophylaxis for ovarian cancer, women and their physicians cannot be faulted for considering the noncontraceptive use of oral contraceptives to prevent this often deadly condition.

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# The Smile

J. Trig Brown, MD, MPH

That smile—broader than the Sea of Tranquility as it spreads across her moon-shaped face. As my patient follows the nurse into the examining room, her smile of recognition beams. It is a smile of recognition, yes, but it seems to say much more.

Before the nurse pulls the door of the exam room closed, I return the patient's smile. I wish I could say that I recognize her, but I do not. From the floor near the door, I gather up the medical chart that has grown too large for the rack on the wall. I notice that some of the entries on the problem list at the front of the chart are in my handwriting, but I shuffle through at least an inch of paper before I find my last clinic notes.

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“...I return the patient's smile. I wish I could say that I recognize her, but I do not.”

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The note jogs my memory. One year ago we met for her annual physical examination. As a general internist, I reviewed her past and current medical problems. My entry from that visit reminds me that she had undergone a bone marrow transplantation for breast cancer. I also remember that she had been upbeat; she had assured me that the transplant worked and had defeated her cancer. Last year, after the physical examination, I ordered a mammogram and other screening tests, and we planned to see each other in a year.

What a year she has had. All the clinic notes following our earlier visit are written by an oncologist. This, I am certain, is a bad sign.

Entering the room, I find her perched on the edge of the examining table. Still, she smiles. I reach to shake her hand, and ask, “How are you doing this year?”

She replies, “Not too bad, for someone with terminal breast cancer.” Still, she smiles.

“Terminal breast cancer” is not a term you used last year, what has happened?” I sit close by and encourage her story.

She tells me that the cancer returned and now has spread to her bones. She is on experimental chemotherapy. She adds,

“You know, last year I never really felt that the transplant had cured me, but I always viewed it as a way to keep me going until other doors to cure me would open. And, I'll tell you, I'm ready for those doors to open now.”

We spend the next few minutes talking about her current condition. Her words hearten me as I learn that her spirits are good and she has very little pain. I ask what I can do for her this year and she responds, “We're supposed to do a physical examination today, you know, the breast exam, pelvic, and Pap smear. You usually order my mammogram, too. To tell the truth, I don't know why we need any of this. I'm likely to die of breast cancer before cervical cancer could ever get me. I think the mammogram is useless because I'm already being treated for breast cancer.” Still, she smiles and adds, “I just don't see what good any of this is.”

“Well, if you'd rather not, I guess we can skip the exams this year,” I say as I struggle to find the appropriate words.

Her smile suddenly fades. Panic fills her face as if my statement has just reaffirmed her poor prognosis. I notice my heart racing and I feel a queasiness in my gut.

Quickly I stammer, “On the other hand, when those doors

---

“Her smile suddenly fades. Panic fills her face as if my statement has just reaffirmed her poor prognosis.”

---

open for the breast cancer cure, we're going to feel pretty silly if you then develop cervical cancer.”

Her smile returns and we sit grinning at each other like a guilty pair of co-conspirators. We do the physical examination, the Pap smear. “I'll call you with the results and I'll see you next year,” I add at the conclusion of the ritual.

Still smiling, she leaves. Neither of us has mentioned anything more about a mammogram or other screening tests. My smile slowly melts as she makes her way toward the exit. The unsaid hangs heavily in the empty room. I go to see my next patient. □

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# Postmenopausal Hormone Replacement Therapy

## Information for Effective Patient Counseling

Ann J. Brown, MD

Life expectancy has lengthened steadily over the past century. A girl born in 1997 can expect to live to be almost 80 years old. This longevity, and the fact that the leading edge of the baby boomer generation is now entering menopause, means that a large number of women will live long after their ovaries stop producing estrogen. In fact, many women will live 30 years or more—almost one-third of their lives—after menopause.

Since estrogen replacement affects many common diseases of older women, it is essential that health professionals provide effective and accurate counseling about hormone replacement therapy (HRT). Effective counseling means more than just information. Many women have misgivings about HRT, and these feelings must be acknowledged and explored during the counseling process. Some women argue that menopause is a “natural” event, not a disease, so why take a medicine for it? Some women distrust the medical profession for “medicalizing” this life transition. Some women are skeptical about the motives of pharmaceutical companies that profit when large numbers of women take long-term HRT. Some women, recognizing the lack of data about some estrogen effects, say that they don’t want to be “guinea pigs.”

Of course, in a sense estrogen *is* dangerous.<sup>1</sup> High-dose oral contraceptives, introduced in the 1960s, caused arterial and venous thrombosis in some women. The thrombogenic effect is dose-dependent and is enhanced in those who smoke or who have hypertension. Even though the estrogen doses used in postmenopausal HRT are 20 times lower than were used in early oral contraceptives, the negative messages remain and provide a foundation of distrust about medical advice regarding postmenopausal HRT. Adding to the mistrust, the formerly popular use of estrogen without progestins for HRT was found to increase the risk of endometrial cancer six- to eight-fold.<sup>1</sup> Using progestins with estrogen eliminates the increased risk,

but women had still one more reason to distrust advice about estrogen use. Finally, there is the question of estrogen-induced increase in breast cancer. Despite decades of research, we have no clear delineation of this risk. Fruitful debate continues, but meanwhile clinicians struggle to provide a clinically meaningful interpretation of research data to patients who rightly fear breast cancer. In fact, fear of breast cancer and a desire not to resume menses are the most consistent reasons women decline or discontinue HRT.<sup>2</sup>

When counseling patients, it is critical that we take into account beliefs—formed in part by the events of the past 35 years—that patients (and perhaps even the medical community) harbor about HRT. At the same time, we must communicate our knowledge about the effects of HRT on the chronic illnesses of an aging to an information-hungry population.<sup>3</sup>

### Varying Estrogen Doses

Early oral contraceptive pills (OCPs) contained 100-150 µg of ethinyl estradiol; today, most OCPs contain 35-50 µg, and a few, such as Loestrin 1/20 and Alesse, contain only 20 µg. For comparison, postmenopausal HRT doses of estrogen (Table 1, next page) are equivalent to about 5-10 µg of ethinyl estradiol.

### Short-Term HRT: Expected Benefits

Estrogen withdrawal occurs over several years as the ovaries gradually produce less estrogen. In some women, low levels of estrogen eventually trigger the hallmark symptom of the climacteric, the hot flush. The lower estrogen levels may produce bone loss and sleep disturbances (leading to difficulty concentrating, fatigue and irritability). Without HRT, these symptoms typically resolve after two to three years, but flushing sometimes lasts for many years. Estrogen rapidly relieves all these symptoms and can be used temporarily to ease the transition of

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**Table 1. Postmenopausal hormone replacement therapy (HRT)**

Type of hormone	Common brands and usual doses
Estrogen	Premarin .625-1.25 mg Estrace 1.0-2.0 mg Ogen .625-1.25 mg Estraderm .05-.1 mg patches Climara .05-.1 mg patches Vivelle .0375-.1 mg patches FemPatch .025 mg patches
Progesterone	Provera 2.5-10 mg Cycrin 10 mg Curretab 10 mg Amen 10 mg Micronized ("natural") progesterone 100-300 mg Norethindrone acetate .2-1 mg po qd
Combination	Prempro (.625 mg Premarin + 2.5 mg Provera) Premphase (.625 mg Premarin + 5.0 mg Provera 14 days of the month) Estratest (esterified estrogen and methyltestosterone)

menopause. Symptoms of urogenital tissue atrophy, such as vaginal dryness and urethral irritation also abate with estrogen use, but recur if therapy is stopped.

## Bone Loss and Menopause

Genetic makeup and environmental factors determine an individual's bone density. A normal bone mass is the result of normal rates of bone formation and normal rates of loss. Adequate calcium intake, and exposure to sunlight and sex hormones are needed to reach a healthy peak bone density. Women who have athletic amenorrhea, those with anorexia/bulimia that results in cessation of menses, and women who smoke may not achieve optimal peak bone mass.

Certain medications can cause bone loss. These include thyroid hormone in excessive doses (indicated by a suppressed serum level of thyroid stimulating hormone [TSH]), glucocorticoids, and dilantin. The loss of estrogen at menopause accelerates bone remodeling, an ongoing process necessary for bone repair. Without estrogen, bone resorption exceeds bone formation for five to eight years after which there is further slow bone loss, probably caused by an inadequate supply of vitamin D and calcium in later years.

Whenever estrogen is replaced during the period of rapid bone turnover, it acts as an antiresorptive agent and halts further bone loss. Increasing calcium intake and adding weight-bearing exercise do not have the same effect, and so cannot substitute for HRT. The protective effect can be demonstrated with either oral or transdermal estrogen.<sup>4,5</sup> It appears to be maximal with a hormone dose equivalent to 0.625 mg per day of conjugated equine estrogens, and lasts as long as the estrogen is taken. If estrogen is stopped, bone turnover again accelerates, leading to a net loss of bone. Recently, a bisphosphonate drug

(alendronate; Fosamax) received FDA approval for the prevention of osteoporosis. Five mg per day provides a nonhormonal alternative for preventing bone loss.

Estrogen also helps established osteoporosis. Recent studies have shown that women who begin HRT well after the period of rapid bone turnover have a 3%-5% increase in bone mineral density (BMD).<sup>4</sup> The Postmenopausal Estrogen/Progestin Interventions (PEPI) trial<sup>5</sup> showed that vertebral BMD increased 3.5%-5% and hip BMD increased 1.7% after three years of HRT. Increases were greatest in older women and those with the lowest initial BMD.

Other therapies available for treating established osteoporosis include nasal calcitonin (Miacalcin) and

alendronate at 10 mg per day. Calcitonin has been shown to increase BMD by 2%-3%, and alendronate increases density by 2%-8% over several years.<sup>6,7</sup> Fracture rates decreased by half (6.2% vs. 3.2%) with alendronate.<sup>6</sup> No similar prospective data are available for estrogen, but a retrospective study showed that estrogen users fractured 60% less frequently than nonusers.<sup>8</sup>

Measurements of bone mineral density and institution of medical therapy should be considered in all postmenopausal women who obviously have osteoporosis (for instance, those with vertebral crush fractures), or who have risk factors for osteoporosis (a strong family history, a history of cigarette smoking, a thin body habitus, a Caucasian or Asian ancestry, chronic hyperparathyroidism, excessive thyroid hormone use, or a history of significant glucocorticoid use). Because many women with no apparent risk factors develop osteoporosis, measuring BMD with dual x-ray absorptiometry (DEXA) is the most accurate method to identify candidates for medical therapy.

## Estrogen and the Heart

Epidemiologic data reported since the 1960s have consistently shown that women who use estrogen reduce their risk of cardiovascular disease by 35%-50% and, if they have known coronary artery disease, reduce the risk of a subsequent cardiac event by as much as an 80%.<sup>9</sup> These are observational studies, and the positive effect of estrogen may be exaggerated because healthy women (those with fewer cardiac risk factors, those who engage in regular exercise, etc.) tend to elect HRT (so-called healthy user bias).<sup>10</sup> Nonetheless, the magnitude of the risk reduction for heart disease—the leading cause of death in US women (and men)—makes it difficult to ignore these data.

Other studies support these epidemiologic observations. Sullivan found that estrogen-using women referred for diag-

nostic cardiac catheterization were less likely than nonusers to have significant coronary artery stenosis (relative risk = 0.44). Ten years later, more of the women who used estrogen were still alive. The estrogen users who attained the greatest benefit were those with the most severe coronary artery blockage; 96% of those women who used estrogen were alive after 10 years compared to 60% of nonusers.<sup>11</sup>

Estrogen probably affects coronary artery disease in a variety of ways. The PEPI trial, a prospective, randomized comparison of four different HRT regimens and placebo, looked at surrogate cardiac endpoints for coronary artery disease.<sup>12</sup> After three years of conjugated equine estrogen use, there was a 14.5 mg/dL decrease in low-density lipoprotein (LDL) cholesterol. High-density lipoprotein (HDL) cholesterol levels increased 5.6 mg/dL in the estrogen-treated group, but decreased 1.2 mg/dL in the placebo group. Addition of a progestin (medroxyprogesterone acetate) attenuated the rise in HDL, but not the decrease in LDL levels. Thus, HRT exerts a powerful and beneficial effect on lipid levels. Other data show that estrogen induces vascular relaxation, slows lipid oxidation, decreases fibrinogen levels,<sup>13</sup> and enhances fibrinolysis.<sup>14</sup>

Prospective clinical data are needed to establish the validity of observational studies. The Heart Estrogen/Progestin Replacement Study (HERS) randomly assigned women with known coronary disease to receive HRT or placebo. This study, which will be completed in 1998, will clarify whether women at highest risk for a cardiac event experience the largest risk reduction with estrogen. The Women's Health Initiative is a large, government-sponsored prospective trial in which women without known CAD are randomized to receive placebo or HRT. This trial, in which 64,500 postmenopausal women will be enrolled in three treatment arms and 100,000 in an observational component, will help answer questions about the cardiac effects of estrogen in lower risk women.

Based on the currently available evidence, women at high risk for coronary artery disease should strongly consider taking HRT with the expectation of increasing life expectancy.<sup>15,16</sup>

## Estrogen and Breast Cancer

Despite years of study, we have no clear picture of the influence of postmenopausal HRT on a woman's risk of developing breast cancer. Meta-analyses of many of the studies done since the 1970s consistently place the relative risk at about 1.0.<sup>6,7</sup> Analysis according to whether estrogen has been used for five to 10 years or for more than 10 to 15 years is more helpful. Short-term users generally show no increased risk of developing breast cancer.<sup>9,17</sup> Long-term users have a greater relative risk, up to 1.71 in some studies.<sup>17</sup>

Two recent reports highlight this controversy. In June 1995, Colditz reported that, in current users of HRT who had more than five years of use, the relative risk of developing breast cancer was 1.46 compared to women who had never used estrogens.<sup>17</sup> The risk was greater in older women (the relative

risk reaching 1.71 in women aged 60-64). Interestingly, in women who had formerly used but stopped HRT, the relative risk of breast cancer was approximately 1.0, regardless of duration of use.<sup>17</sup> The second study, published in September 1995,<sup>18</sup> reported data from a population-based, case-control study. It found that the rate of breast cancer was no higher in users of HRT than in nonusers. In this study, those who had ever used HRT (most of whom were still using) had a relative risk of breast cancer of 0.9, and increased duration of use was not associated with increased risk.

Translating these data into useful clinical recommendations is a challenge. A prospective randomized clinical trial capable of distinguishing what seems to be a very small change (if any) in risk requires that large numbers of women be randomized to take HRT or placebo and be followed for long periods. The Women's Health Initiative, which will follow women for 10 years, may provide helpful clues, but probably won't definitively solve this quandary.

In lieu of absolutely convincing data, women can be reassured that short-term estrogen use does not appear to increase the risk of breast cancer. With long-term use, the data are unclear, but any change in risk is likely to be small unless the woman is otherwise at high risk for breast cancer. High-risk women, especially those at low risk of osteoporosis or coronary disease, may be poor candidates for HRT.<sup>15</sup> Routine self-breast exam, mammography, yearly examination by a health care provider, and frequent dialogue about HRT remain the important components of therapy.

## HRT and Brain Function

Several recent studies suggest that estrogen exerts beneficial effects on cognition and neuronal health.<sup>19</sup> Tang et al<sup>20</sup> followed more than 1200 healthy older women for one to five years; 16.3% of the women who had never used HRT developed Alzheimer's Dementia (AD), but only 1.7% of women who had used HRT for one year or more did (calculated relative risk = 0.13).<sup>20</sup> The authors concluded that estrogen use significantly delayed the onset of AD, an effect that may have great clinical importance. In another study, Paganini-Hill<sup>21</sup> found that any use of HRT lowered the risk of developing AD compared with nonusers (relative risk = 0.69). Both studies indicated that longer exposure was associated with decreased risk. The Women's Health Initiative study will provide more definitive data by the year 2008.

## Overall Life Expectancy

Despite controversy about the influence of HRT on individual diseases, several recent analyses predict that women who use HRT will, in general, live longer than those who do not.<sup>11,15,16</sup> The health profile of individual women determines the additional months or years of longevity. A computer-assisted deci-



sion analysis of life expectancy in HRT users, which assigns varying degrees of risk for coronary disease, hip fracture, and breast cancer, provides a helpful estimate of individual risk.<sup>15</sup> This model calculates that life expectancy will increase in most women who begin using HRT at age 50. The predicted increase in longevity is 41 months in women at lowest risk for breast cancer and highest risk for heart disease. Only those at highest risk for breast cancer (women who have two first-degree relatives with breast cancer) and lowest risk for coronary disease are predicted to have a shorter life expectancy with HRT use. This decision analysis suggests that most women would extend their lives by taking HRT.

## Effects of HRT on Common Medical Conditions

HRT exerts widespread metabolic effects, and thus influences a broad spectrum of conditions. But some effects attributed to estrogen do not withstand rigorous analysis or have been seen only with high estrogen doses, not the lower doses used today for HRT. I discuss the effect of HRT on selected conditions:

**Hypertension:** Blood pressure drops slightly (perhaps reflecting estrogen's vasodilatory properties) or is unchanged in most women who begin HRT.<sup>9,12</sup> It is not contraindicated in women with preexisting hypertension. A minority of women have a significant rise in blood pressure with HRT. This usually occurs early in treatment and may necessitate discontinuing therapy.

**Diabetes.** Several studies have evaluated the effect of HRT on carbohydrate metabolism in normal women, but few have looked at women with diabetes. In normal women participating in the PEPI trial, insulin and glucose levels fell with estrogen use.<sup>12</sup> Clearly, estrogen did not worsen glucose tolerance as the early OCPs were reported to do. In fact, HRT lowered insulin levels, which might attenuate the risk or delay the development of clinical diabetes. There is very little information on the effect of HRT on glucose metabolism in women with diabetes, but initiation of HRT usually requires no change in treatment regimen. Triglyceride levels do require careful monitoring, because hypertriglyceridemia is common in women with diabetes, and oral estrogen may raise levels significantly.

**Triglycerides:** Very low-density lipoprotein (VLDL) synthesis is increased by estrogen.<sup>9</sup> Giving the estrogen by mouth exposes the liver to the highest concentration of estrogen and has the most pronounced effect on triglyceride levels. Transdermal estrogen delivery exerts a far lesser effect, and may be clinically useful in women with hypertriglyceridemia. Hypertriglyceridemia may worsen acutely when HRT is begun, so HRT should be delayed until hypertriglyceridemia is controlled.

**Thrombosis:** Estrogen exerts a dose-dependent effect on coagulation proteins, enhancing both thrombosis and fibrinolysis.<sup>14</sup> Most observational studies have shown no correlation between HRT use and thrombotic disease,<sup>22</sup> but recent, large analyses report a moderately increased risk for thrombotic events in current HRT users. The Nurses' Health Study<sup>23</sup> found that estrogen users had a relative risk for pulmonary embolism of 2.1, but the low incidence of the disease makes an accurate risk assessment difficult. Smoking did not affect the risk.

**Weight gain:** In the PEPI trial, *all* women gained weight during the three-year study period.<sup>12</sup> Interestingly, and contrary to popular perception, the women using HRT actually gained less weight than nonusers. Women on conjugated equine estrogen alone gained the least weight. This observation should reassure women reluctant to start HRT due to fear of getting fat.

**Colon cancer:** Recent studies suggest that HRT protects against developing<sup>24</sup> or dying from colon cancer.<sup>25</sup> The Women's Health Initiative may provide more definitive data on this issue.

**Stroke:** Observational studies<sup>26</sup> have shown that HRT users experience the same or lower risk of stroke compared to nonusers.

## Giving Hormone Replacement

**HRT regimens** (Table 2, below): Women who have undergone a hysterectomy should take daily estrogen without a progestin. Progesterone has no beneficial effect in the absence of an endometrium. It does not enhance the effect of estrogen on bone, and it does not protect against breast cancer.<sup>17</sup> In fact, it may have unwanted effects such as blunting the rise in HDL

**Table 2. Common regimens for HRT**

	<u>HRT regimen</u>	<u>Example</u>	<u>Comments</u>
<b>Uterus absent</b> (hysterectomy)	estrogen daily	Premarin 0.625-1.25 mg po qd	no need for progesterone
<b>Intact uterus</b>	estrogen and progesterone daily	Climara 0.05 to skin q week + Provera 2.5 mg po qd	continuous, combined HRT; amenorrhea expected
<b>Intact uterus</b>	daily estrogen and cyclic progesterone	Estrace 1-2 mg po qd + Provera 5-10 mg days 1-14 q month	cyclic HRT, monthly menses

cholesterol,<sup>12</sup> or adversely influencing mood.<sup>19</sup> The only benefit of progesterone is to "oppose" the endometrial proliferation induced by estrogen, which (if unchecked) may progress to hyperplasia and cancer.

Women who do have a uterus must take estrogen with adequate progesterone: 5-10 mg per day for 10 to 14 days of the month for cyclic regimens (a program which will usually induce a menstrual period), or 2.5 mg per day in continuous combined regimens (which often suppresses menses).<sup>27</sup> Another progestin, norethindrone acetate, has been tested in combination with ethinyl estradiol. At doses ranging from 0.2-1 mg per day combined with ethinyl estradiol 1-10 µg per day in a continuous regimen, norethindrone acetate adequately protected against endometrial hyperplasia,<sup>28</sup> and provides an alternative HRT regimen.

**Contraindications to HRT:** Contraindications to estrogen include pregnancy, undiagnosed vaginal bleeding, acute liver disease, estrogen-associated vascular thrombosis, estrogen-dependent neoplasm, or a history of breast cancer. The last two are active areas of research. Ongoing clinical studies may allow us to revise recommendations regarding the prohibition of estrogen for women with a history of early stage endometrial cancer or breast cancer.

**Management of uterine bleeding:** In the absence of HRT, all postmenopausal uterine bleeding should be considered a sign of endometrial cancer until proven otherwise. Evaluation should include an endometrial aspirate, easily performed in the office. Transvaginal ultrasound to demonstrate an endometrial stripe smaller than 5 mm provides support for an atrophic, noncancerous, endometrium, but cannot fully replace aspiration. Other causes of bleeding include uterine fibroids and polyps. These diagnoses must be ruled out in any woman who has experienced recent unexplained uterine bleeding before initiating HRT.

For women on cyclic regimens, withdrawal bleeding usually begins three to five days after the last dose of progestin. Bleeding at any other time is considered abnormal. Abnormal bleeding may simply reflect an inappropriate balance of estrogen and progestin that has resulted in breakthrough bleeding, but malignancy must be ruled out. For women taking continuous combined therapy with daily estrogen and progestin, spotting or bleeding may occur for the first eight to 12 months. Women who have been amenorrheic for several years are less likely to have unscheduled bleeding and thus are good candidates for this regimen. In the first few months after starting HRT, all regimens, whether cyclic or continuous, may cause irregular bleeding. This usually does not require investigation unless it persists beyond six months.

**Adherence:** Long-term adherence to any preventive therapy requires that the patient understand its value. Effective education and planned follow-up are essential components of ongoing care for midlife and older women, especially those taking HRT. It has been repeatedly documented that most women who

are prescribed HRT will not continue long-term therapy, usually because of uterine bleeding or concerns about breast cancer. This observation emphasizes the importance of effective counseling.

With the variety of regimens available, most candidates for HRT should be able to find a tolerable regimen. Table 3, below, outlines ways to encourage informed decisions about HRT. Strategies for enhancing adherence include:

**Tailor therapy:** Perimenopausal women can control symptoms with very low-dose oral contraceptives (Loestrin 1/20 or Alesse). After age 50 (and after ruling out pregnancy), cyclic low-dose estrogen (such as Premarin) and progestin (such as Provera) provide relief of symptoms and regularize menses, but higher doses of estrogen may be required to fully alleviate symptoms. Consider starting with 0.9-2.5 mg of Premarin per day, decreasing the dose to 0.625 mg per day over several years. A woman in early menopause could be placed immediately on continuous combined HRT (for example, 1-2 mg/d of Estrace and 2.5 mg/d of Provera, or Prempro), but unscheduled bleeding leading to endometrial aspiration is much more likely in such patients.

**Table 3. Patient counseling for postmenopausal HRT**

**1. Bring it up**

Menopause is a natural event. Women may not seek medical "treatment" for it, especially if they do not have symptoms.

**2. Address beliefs about menopause and HRT**

Most women have some beliefs about estrogen and menopause. Understand and respond to preexisting knowledge. Help place concerns in perspective.

**3. Discuss duration of treatment**

Explain that you plan to raise the issue of whether or not to continue therapy on a regular basis. The decision can be changed based on patient satisfaction and new data.

**4. Review anticipated side effects**

Common estrogenic effects include mastalgia, transient nausea, and unanticipated uterine bleeding. Develop a plan of action for these. For example, for mastalgia, lower the estrogen dose and increase gradually. For bleeding, have the patient call the office to discuss.

**5. Plan phone follow-up**

Encourage phone follow-up to decrease the likelihood that a patient will discontinue HRT for avoidable reasons. Consider training a nurse to answer frequently asked questions.

**6. Bring it up again**

Discuss HRT at subsequent visits. Consider changes in dose or regimen to accommodate individual responses to therapy.



Instead, consider cyclic therapy for three to five years, then change to continuous combined therapy. Older postmenopausal women who have been amenorrheic for several years are less likely to bleed on continuous combined therapy and are good candidates for this regimen. Since older women have had a low estrogen level for many years, consider starting with a low dose of estrogen, (for instance, 0.3 mg of Premarin every other day or FemPatch 0.025 mg) and gradually increase the dose to minimize mastalgia, headache, and bloating that may come with a rise in estrogen levels.

**Remain available:** Patients on HRT may experience unusual symptoms, or expected symptoms, which may be more pronounced than anticipated. During the initial discussions about HRT, emphasize the need to discuss any troubling symptoms before discontinuing therapy. Consider training a nurse in your practice to act as a phone resource.

**Provide resources:** Written material to take home can make subsequent office visits more efficient. The article for patients that follows this piece (pages 418-419) may be reproduced and distributed to your patients if you find it useful. Encourage women to seek information from other sources. I routinely suggest a local consumer education program, and books such as *I'm Too Young to Get Old: Health Care for Women After Forty* by Judith Reichman, MD.

**Consider creative ways to reach the community:** None of my suggestions so far address the issue of how to provide this critical preventive service to underserved women and women who do not routinely seek care. In fact, these may be the very women who would benefit most from HRT and other preventive services. This social problem is beyond the scope of this article, but it is something for the medical community to

struggle with, and something to remember when considering strategies to educate your patients.

**Alternatives to HRT:** Whether we condemn or recommend it, women seek alternatives to HRT. A basic understanding of some of these remedies will open doors to a fuller understanding of the experience of menopause and perhaps enhance trust and communication with women who use alternative therapies. Many herbal agents used to treat menopausal symptoms contain plant estrogens. The dose equivalency is difficult to determine, but heightened endometrial surveillance for an unopposed estrogen effect might be warranted. I am often asked about a plant estrogen ("phytoestrogen") found in soy-based foods. A growing body of scientific evidence suggests beneficial effects on coronary vasculature, but no human studies have been done.

## Conclusion

The decision to take HRT depends on a multitude of individual factors, including personal risk for heart disease, osteoporosis, breast cancer, Alzheimer's disease, stroke, and a host of other medical conditions. It also depends on personal beliefs, informed by the troubled history of estrogen and personal experience. Given these variables, not all women will elect to take HRT. But in light of its potential to prolong life and benefit chronic disease, all women should carefully consider long-term hormone replacement therapy before rejecting it. □

*"For Patients: Hormone Replacement Therapy,"  
pages 418-419*

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# FOR PATIENTS: Hormone Replacement Therapy

Ann J. Brown, MD, Medical Co-Director, Duke Women's Services, Assistant Professor of Medicine/Endocrinology

If your age is between 40 and 90, you may wonder whether you should take estrogen after menopause, when your ovaries no longer supply you with this hormone. The answer will depend on a lot of factors, including much that we still have to learn about how female hormones affect health in the second half of life. But one thing we can say for sure: you should at least *consider* the options available to you.

In order to review these options, I need to raise some questions about estrogen hormone replacement therapy (HRT) and your health. As you read on, think about your own health and that of your family members. Then think about what you have heard and what you believe (positive and negative) about HRT. After you have done all this, take the time to talk with a health care provider who can help you pull it all together. Then you can make an informed decision about whether you should take HRT. The time spent will be a good investment in your future.

**Some definitions.** The term "hormone replacement therapy" encompasses different regimens of estrogen and progesterone therapy. All are designed to "replace" female hormones that your ovaries produced before menopause. Table 1, next page, lists several popular kinds.

In addition to different hormone preparations, they may be combined in different ways, depending on whether you have had your uterus removed (hysterectomy) or not, and depending on whether you and your doctor decide on that you should continue to have menstrual periods or not. Table 2, next page, shows several of these hormone regimens.

**Symptoms of menopause.** As you approach your late 40s, your ovaries gradually produce less estrogen. Menstrual periods become irregular and the symptoms of low estrogen start appearing. The severity of the symptoms may differ from person to person, but women commonly experience hot flashes and vaginal dryness. The hot flashes may wake you up at night, interrupting your rest and causing unusual irritability and fatigue. Dry tissues around the vagina and urethra can make sexual intercourse painful, and may cause pain with urination. These symptoms of menopause get better immediately with HRT. So, whether you are beginning to experience these symptoms, or have had them for months, HRT offers rapid relief. If you elect to stop HRT after a few years, the hot flashes probably won't come back. The vaginal dryness will, but this can be remedied with a vaginal lubricant such as Astro-glide or Replens. Estrogen vaginal cream can also provide relief, but the estrogen will be absorbed through the vagina, raising your blood estrogen levels. If you should not take estrogen, you should probably not use estrogen vaginal cream.

Setting aside the details, the message is: "short-term" HRT can help to make the menopausal transition easier. In addition to relieving symptoms, though, estrogens can have several other health benefits (and risks), especially when used for longer periods. I want to look at the effects of long-term use now.

**Osteoporosis.** Estrogen prevents the accelerated bone loss that "naturally" occurs in the years after menopause and that can

lead to osteoporosis. A diet rich in calcium (1500 mg of *elemental* calcium per day) and vitamin D (400-800 IU/day), and regular physical activity are essential, but even these healthy habits can't fully protect you from osteoporosis. Taking estrogen within the first five years or so after menopause is the most powerful way to prevent loss of bone. It works as long as you take it. When you stop, bone loss starts up again. In addition to estrogen, a nonhormonal medication (Fosamax) has recently been approved for the prevention of osteoporosis.

Take an inventory of your osteoporosis risk to help you understand if estrogen's powerful effect on bones is what you need. Your risk is increased if you have a family history of osteoporosis, are thin, are of Caucasian or Asian extraction, or if you didn't reach a good "peak" bone mass in your early 30s. Younger women who dieted or exercised to the point where menstrual periods stopped may not have built up an adequate peak bone mass. If you're not sure where you stand, a measurement of bone density might give you the information you need to make a decision. A special x-ray study, called a DEXA scan, can determine the density and estimate the strength of your bones.

If you already have osteoporosis, there are several options for medical treatment. They include estrogen, and two nonhormonal agents, Fosamax and Miacalcin.

**Heart disease.** Heart disease is the leading cause of death among American women. Most women worry more about developing breast cancer than about developing life-threatening blockages in the arteries that supply the heart. Breast cancer is a serious concern, but so is heart disease. Before menopause, the chance that a woman will die of heart disease is nearly the same as the chance that she will die from breast cancer. After menopause, however, the chance of having a heart attack far exceeds the chance of developing breast cancer.

The good news is that you can do something about heart disease. HRT can cut your chance of having a heart attack in half. And if you've already had a heart attack, HRT can cut your chances of having another one by up to 80%. Estrogen helps the heart by lowering low-density lipoprotein cholesterol (LDL; sometimes called "bad" cholesterol) levels and raising high-density lipoprotein (HDL or "good") cholesterol levels. HRT may also prevent spasm of the arteries that deliver blood and oxygen to the heart, and lower the level of proteins that contribute to blood clots in those arteries.

You can do a lot to prevent heart disease. Taking estrogen is a powerful way to ward off a heart attack. Other ways to reduce your risk include eating a low-fat diet (less than 30% of your total daily calories from fat), exercising regularly, controlling high blood pressure and high cholesterol, and not smoking.

**Breast cancer.** If you're confused about whether estrogen causes breast cancer, join the crowd. Studies of this subject have given conflicting results. Some studies show that estrogen has no effect on breast cancer risk. A few found an increased risk among women who had used estrogen for more than five to 10 years. Until medical studies sort this out, it's fair to say that using HRT for less than five years probably does not raise your risk of

breast cancer. The decision about whether to take HRT and for how long should rest on a thorough assessment of your personal health, including your own risk of osteoporosis, heart disease and breast cancer, and the severity of your menopausal symptoms.

**Other medical conditions.** Preventing disease is important, but this goal may not seem as important as health challenges you already face today. What if you have diabetes? High blood pressure? What if you have had a stroke? A blood clot? Does HRT affect these conditions? Let's look at them one by one:

**Diabetes:** Recent studies show that HRT may improve one of the major problems with diabetes: the body's resistance to insulin. People with Type 2 (adult onset) diabetes are resistant to the action of insulin. HRT helps break down that resistance and improves sensitivity to insulin. So, rather than making blood sugars go up, HRT may actually lower them. Women with diabetes should seriously consider HRT. It is unlikely to make blood sugars go up, and because women with diabetes are three to seven times more likely to develop heart disease than women without diabetes, HRT's protective effect on the heart is especially important.

**Alzheimer's dementia:** Recent studies suggest that estrogen may delay the development of memory loss and impaired thinking known as Alzheimer's disease (AD). In one study, a group of elderly women were followed for five years. Among women who did not take estrogen, 16% developed AD; among those who took estrogen for long periods, only 1.7% developed AD. This is an important finding, but will need to be confirmed by other studies. This is an active area of research, so stay tuned!

**High blood pressure:** Most women with hypertension notice either no effect or a modest lowering of blood pressure on HRT. A few experience an unexpected increase in blood pressure, but this is unusual. Monitoring blood pressure after starting HRT will tell you how you respond.

**High blood triglycerides:** Estrogen can increase blood triglyceride (fat) levels. In most people, this is not clinically meaningful. However, if you already have high triglyceride levels, estrogen may raise them significantly higher. This problem can be detected by measuring blood triglycerides. Any abnormality should be well controlled before taking estrogen. For women with high triglycerides, an estrogen patch is probably a better choice than a pill, since estrogen delivered through the skin tends not to raise triglyceride levels as much.

**Stroke:** Several studies reported during the past five years

**Table 1. Medications used for postmenopausal hormone replacement therapy**

<u>Type of hormone</u>	<u>Common brands and usual doses</u>
<b>Estrogen</b>	Premarin .625-1.25 mg, Estrace 1.0-2.0 mg, Ogen .625-1.25 mg, Estraderm 0.05-0.1 mg patches, Climara 0.05-0.1 mg patches, Vivelle 0.0375-0.1 mg patches, FemPatch .025 mg patches
<b>Progesterone</b>	Provera 2.5-10 mg, Cycrin 10 mg, Curretab 10 mg, Amen 10 mg, Micronized ("natural") progesterone 100 -300 mg, Norethindrone acetate .2-1 mg po qd
<b>Combination</b>	Prempro (0.625 mg Premarin + 2.5 mg Provera) Premphase (0.625 mg Premarin + 5.0 mg Provera 14 days of the month) Estratest (esterified estrogen and methyltestosterone)

**Table 2. Common regimens for HRT**

	<u>HRT regimen</u>	<u>Comments</u>
<b>Uterus removed</b> (hysterectomy)	daily estrogen	You do not need to take progesterone.
<b>Intact uterus*</b>	daily estrogen + progesterone	You should have no menstrual periods on this regimen.
<b>Intact uterus*</b>	daily estrogen + progesterone for 10-14 days a month	You should have a menstrual period starting three to five days after your last dose of progesterone.

\* If your uterus is still in place (you have *not* had a hysterectomy), then you need to take progesterone along with estrogen. If you take estrogen alone, you increase your risk of developing endometrial (uterine) cancer. The addition of progesterone *eliminates* this risk.

indicate that HRT reduces the risk of stroke in older women.

**Blood clots:** There is no clear evidence that estrogen used in postmenopausal HRT doses increases the risk of blood clots. If you have had phlebitis in the past, either of the veins close to the skin (for instance, inflammation of varicose veins) or in the deep veins of the leg, HRT will generally not increase your risk of another episode. The exception to this is if the blood clot you had was *definitely* associated with estrogen use, or a "high-estrogen" state such as pregnancy. In these cases, it may be prudent to avoid HRT to decrease the likelihood of recurrence.

**Migraines:** Some women with migraine headaches experience more frequent headaches with HRT. However, some note no change and some report that they still have headaches, but that they seem to be more predictable. Each woman has her own response to HRT.

**The bottom line.** The decision to take HRT is a personal one. The pros and cons stack up differently for each woman. But no matter how old you are, you should carefully consider whether or not to take HRT. After you've thought about it, schedule some time to talk with your health care provider because, in this case, it really is true that an ounce of prevention is worth a pound of cure! □



# Investor-Owned or Not-For-Profit Health Care

## A Conundrum for Communities

Johnson H. Kelly, MD, MBA, and John E. Young, MBA

The advent of managed care has led many observers to believe that only large health care provider groups can command enough market share, geographic coverage, and provider numbers to succeed. As a result, practice and hospital acquisitions, mergers, and other consolidations proceed at a dizzying pace. The health care entities being created can be divided into investor-owned (sometimes referred to as "for-profit") and not-for-profit camps. What distinguishes the one from the other? Do they compete on a level playing field? Which is better—for whom—and at what price?

A number of communities have faced (or will face) difficult decisions about whether to sell, merge, or transfer their health care assets to an investor-owned or a not-for-profit corporation. That being so, it is surprising how little has been written to help us analyze the important issues. Stakes for the affected communities are high—and the results long-lasting.

We have always favored the not-for-profit approach. However, we based this choice mostly on an emotional, heartfelt belief that health care's primary mission is to serve patients; financial reward should be secondary. When we rigorously examined our position and asked ourselves to justify it, we found that we needed a better understanding and analysis of the issues. We have spent some time talking with thoughtful individuals, reading what we could, and contemplating the implications. We present here a progress report on what is still an ongoing process of inquiry for us.

### Mission and Accountability of Health Care Institutions

A fundamental principle of finance and business is that management has a duty to maximize value for the owners. If the owners are private investors, then management's duty is to maximize profits for the shareholders (that is why it is called an

"investor-owned" organization). In contrast, if the owners are not private citizens, but rather those who value something other than financial return—like provision of a service, a set of principles, religious values—then management's duty is to maximize those values rather than dividends. These organizations are commonly called "not-for-profit."

All organizations must generate and collect revenues in excess of expenses if they are to remain financially healthy and viable. In this sense, all seek to be profitable, otherwise they cannot exist. But there is a key distinction between investor-owned and not-for-profit health care organizations. Both want to provide quality, compassionate, and efficient care, but investor-owned organizations do so primarily to achieve financial profit; not-for-profit organizations do so because of other values that are their primary goal. Stated differently: for one, good care is a *means* to an end; for the other, it *is* the end. Some analysts say that investor-owned health care institutions provide by accident what not-for-profit providers do on purpose.

Investor-owned organizations are forthright about their goals and objectives. They want to make money. It is relatively easy to determine whether they achieve that goal using accounting principles, and management can be held accountable based on measured performance. Quality service is valued, but as a means to an end. In the past, quality of care has been difficult to assess, but tools for measuring the health of the covered population and the outcomes of care are being developed; as they become more sophisticated, accountability will increase.

The mission of not-for-profit organizations is service to the public good of the community they serve. Although admirable, success in meeting this objective is difficult to measure. Financial solvency remains important ("no margin, no mission"), but it is not what matters most. Compassionate and effective care of the sick and wounded, or the overall health of the community may be the elements of primary importance. We need better tools to measure clinical outcomes and general health and

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wellness of the served populations in order to hold not-for-profits accountable in what matters most.

## Profits and Taxes

It has been said that "on the map of American society, one of the least charted regions is variously known as the voluntary, the private nonprofit, or simply the third sector"<sup>1</sup> (the other two sectors are government and business). In 1917, Congress recognized the social value of private, "not-for-profit" organizations that serve the public interest and exempted them from paying income tax. These organizations exist exclusively for charitable, literary, or educational purposes. In terms of dollars, the health sector leads all other tax-exempt entities.<sup>1</sup>

Investor-owned organizations pay local property tax and corporate federal and state income tax on revenue in excess of expenses and interest on debt. Once taxes have been paid, the remainder is available to pay dividends to stockholders, to invest back into the organization itself, or to return to the community in the form of health care programs and services for the indigent or reduced health care charges, etc. The local income tax stays in the community, but the net effect is that money leaves the community in the form of federal and state income taxes and investor dividends.

Not-for-profit organizations do not pay local property tax or federal and state income tax; nor do they pay dividends. This means that the entire amount left after expenses and interest on debt is available for reinvestment in the organization, or distribution back to the community in the form of indigent health care, enhanced programs and services, reduced health care charges, etc. Revenues in excess of expenses and interest on debt stay in the community.

## Efficiency and Quality of Health Care Institutions

Investor-owned organizations compete on price with not-for-profits despite their obligation to pay taxes and dividends. They say that greater efficiency is the reason for their recent successes; their critics say that they reduce expenses by withholding care rather than by providing efficient care. It is true that investor-owned organizations must offset the tax and dividend savings that not-for-profit organizations enjoy. Otherwise, they would have to raise their prices or reduce their reinvestment in the community or fail to pay a financial dividend to their shareholders. If not-for-profits pay attention to cutting costs and improving their efficiency, investor-owned organizations may lose their alleged superior efficiency. Tools for measuring outcomes and other aspects of quality of care are still in their infancy, so the controversy over which system is better remains undecided. However, when indicators of quality become available, we will be able to judge organizations by the care they provide and by the general health and well-being of the popu-

lations they serve. Organizations that provide demonstrated quality at a low price will have a competitive advantage.

## Service and Planning for the Long Term

In order for investor-owned organizations to maximize shareholder income, they must avoid providing services to patients who cannot pay (unless providing such services improves the organization's bargaining position in a community). On the other hand, in order for not-for-profits to serve the public good, they must try to provide services regardless of patients' ability to pay (but they are not obligated to let unlimited charitable services jeopardize their survival or long-term success).

Managers of both investor-owned and not-for-profit organizations must plan for the long-term growth and success of their institutions. Investor-owned organizations are currently at a decided disadvantage in this regard because Wall Street investors focus on short-term results (quarterly earnings) in their evaluation and appraisal. Shortsighted preoccupation with short-term profits precludes focusing on long-term strategies that may ultimately lead to greater success.

Communities are more concerned about not-for-profit organizations' ability to maximize long-term health and welfare rather than their short-term financial success. This means that their strategic planning can focus on long-term growth and perpetuation. Prudence requires some attention to the short-term, but the long-term view enables not-for-profit organizations to take advantage of opportunities not available to organizations that must always operate reactively.

Communities that want to improve the general health and well-being of their citizens must ensure that all of the community's providers participate in an integrated network—sharing information and expertise, minimizing duplication, and fostering synergy. Schools, hospitals, physicians, churches, home health, behavioral health, hospice, public health, and volunteer organizations must form networks. Investor-owned organizations may be able to participate in such networks, but shareholders' rights to dividends produce a conflict of interest with providers whose prime incentive is the public good. Not-for-profits have no such conflict of interest and can facilitate a network of service to the community.

## Is the Playing Field Level?

Since investor-owned organizations have to pay corporate income tax, property tax, and dividends, they would seem to be at a competitive disadvantage relative to not-for-profit organizations. Investor-owned organizations have overcome this by vigorously improving efficiency, by negotiating discounts with suppliers, and by targeting profitable lines of health care services—and (possibly) by reducing the quality of service and (almost always) by limiting the access of indigent patients. At present, investor-owned organizations enjoy the advantage of a



ready supply of capital from equity markets. This is not available to not-for-profit organizations, which cannot sell ownership of their organization to investors. Should our society decide that all citizens must have access to health care, not-for-profit organizations will gain the advantage because of their exemption from taxes and the dividend demands of stockholders. In the long run, not-for-profits should come out ahead, *if* they can survive the current storm of mergers and acquisitions.

In some cases, not-for-profits have amassed progressively larger reserves. Investor-owned organizations argue that these institutions should lose their not-for-profit status since such behavior does not adhere to their mission statement. This claim has merit, but those not-for-profits that consistently adhere to their mission are not vulnerable to such claims. They deserve the reputation and trust that befits their goodwill and service.

## Should Communities Sell Out?

Our analysis suggests that a not-for-profit health care system offers many benefits to a community, but each organization and each community is unique. If, in the final

analysis, the decision favors a not-for-profit approach, then the community should develop the strongest not-for-profit network possible. But not every not-for-profit organization offers every advantage described here, nor do investor-owned organizations invariably fail to share the desired set of values and community commitments. If the values, principles, integrity, and track record are sound—and the price is right—we can imagine scenarios in which it is in a community's best interest to sell its hospital to an investor-owned organization (although it is hard to imagine why such an organization will not be planning to take more out of the community than it paid for the hospital). It seems to us that the greatest danger is that an informed community decision may be so complex that careful analysis becomes overwhelming.

## The Good Fight

Free enterprise and profit incentives are the motor that drives American economy and culture. The investor-owned approach has brought attention to efficiency and cost savings in the health care industry. Without the rigorous discipline of cost-control and efficiency, society has had to pay too much for health care. But there is always the threat that attention only to profit will ignore the care of the indigent (and shortchange medical education and research). Not-for-profit organizations serve a different perspective and mission. They strive for a responsible stewardship that transcends usual business concerns. They must, of course, maintain fiscal viability, but their larger mission addresses compassion, education, and research. Until we develop good measures of outcome and quality, society will benefit from a healthy competition between these two approaches. □

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Today AsBefore Print History Brogue  
Notes

**SUMMARY**  
Grade 2 talofibular ankle sprain - AUTHOR: Robert A. Christopher

**NOTES**  
Echo Note Subjective Note Objective Note Assessment Note Plan Trendancy

1. **SUBJECTIVE**  
2. This patient presents today complaining of pain and swelling over the lateral left ankle, which has been present for the past few days.  
3. These symptoms arose after a fall on an inverted left ankle. The patient noted immediate pain and swelling following this injury.  
4. Ambulation markedly aggravates the pain and swelling. Over-the-counter analgesics have been only minimally helpful in alleviating these symptoms.  
5.  
6.  
7. **OBJECTIVE**  
8. Vital Signs: Systolic-120 - Diastolic-80 Pulse-78 / Resps-15 / Temp-98.5 / Weight-135 / Height-65"  
9. Chest: The chest wall is not tender. It moves symmetrically with respiration. There are no chest wall masses or cutaneous lesions. The lungs are clear to auscultation and percussion. There are no rales, wheezes, or rhonchi detected. The heart sounds are regular. There are no gallops, murmurs, clicks, or rubs. The first and second heart sounds are normal. The PMI is not displaced or abnormally sustained, and there are no thrills.  
10. Abdomen: A four quadrant examination of the abdomen reveals no tenderness, masses, organomegaly, or cutaneous lesions. The bowel sounds are normal. There is no guarding, and no costovertebral angle tenderness. There is no distention or tenderness in the suprapubic region. There are no bruits noted.  
11. Musculoskeletal: Marked tenderness and soft tissue swelling is present over the lateral left ankle. The tenderness is significantly increased with inversion stress of the lateral ankle joint, but no significant laxity of this joint is noted on this examination. The remainder of the musculoskeletal exam is normal. Point bony tenderness over the ankle bones is not present.  
12.  
13. **ASSESSMENT**  
14. 1. Grade 2 talofibular ankle sprain - left (ICD9-845.09)  
15.  
16. **PLAN:** (CPT4-99214)  
17. 2. Ice to be applied intermittently over the next 48 hours  
18. 3. Non-weight bearing with use of crutches for the next week, then begin range of motion and strengthening exercises  
19. 4. Ultram 50mg 1-2 tabs po qid prn pain #40 1 refill. The potential for GI side effects was discussed with the patient  
20. 5. Return to clinic 2-3 weeks for reevaluation  
21.  
22.

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# Some Thoughts on Keeping Our Noble Profession Professional and Noble

William B. Blythe, MD

**Editor's note:** Dr. Blythe delivered this address to the Alpha Omega Alpha chapter at the UNC School of Medicine, Chapel Hill, on April 23, 1997.

I can vouch for the absolute validity of the first two things that I record below. I hope to at least approximate the truth on the points that follow, but I am not certain how close I will get. So *caveat lector*, let the reader beware.

The first thing that I am certain of is that I deeply appreciate the invitation of the members of Gamma Chapter of Alpha Omega Alpha to give this year's lecture. It is a high honor that I shall cherish as long as I am able to cherish. The second bit of certainty is the sincerity of my congratulations to the new initiates of Alpha Omega Alpha. You, too, should cherish the honor that has been bestowed upon you. I congratulate you all!

As you might imagine (although it may not always be apparent), I have thought quite a bit about what I want say on this occasion. Those of you who have given hortatory speeches know that the immediate reaction on receiving an invitation to speak is one of rejoicing at the opportunity to set all things straight as only you, the speaker, can. Your joy is enhanced by the thought that every member of the audience will sit expectantly, intellectual mouths open wide like little birds awaiting mother's return to the nest. That vision is reinforced by the seductive tendency to mistake as wisdom what in reality is only the wistful urge to return to the wonderful way things were (but which of course never were). But then, as one prepares to launch the mother of broadsides at all the evils and ill-doings of the world, the target grows smaller, the ammunition less powerful, the aim less certain.

I was not at all reassured by some advice about the making of speeches that I ran across as I set to my task. Sir William Osler said I should "Look wise, say nothing, and grunt. Speeches are given to conceal thought." And Dr. Jackson Smith wryly commented that there "are many ways to deliver papers; the best way is to toss them on the front porch before sunup."

## The Way Things Are

These are strange times—at least in this country—for the medical profession. On one hand, we live in the most exciting and fruitful time in biomedical science ever, certainly the most fruitful since the 17th century. We are able to provide more truly effective treatment for more diseases than ever before—and we are on the verge of being able to so help ever more disorders. On the other hand, our profession is confused, distressed, even bewildered about *how* therapy should be delivered, *how much* and *to whom* it should be provided, and *how* it should be paid for.

Like many other people, some in high places, I believe that these are perilous times for our profession. Medicine may even cease to exist as a profession unless we change our present course. Of course, somebody has always thought that *now* is a perilous time; all generations have their Chicken Littles running around fitfully proclaiming the falling sky. That being the case, I thought that it might be helpful, if I can pull it off, to offer some thoughts about how to keep our calling both professional and noble, no matter the political or scientific context of the time. I want to emphasize those factors that I think are immediately important.

## The Nature of Profession

Let us look at what a profession is. What does it mean to be professional? According to Professor Everett Hughes, the *Ox-*

Dr. Blythe, a Nephrologist, is Marion Covington Professor of Medicine, University of North Carolina School of Medicine, Chapel Hill. He also chairs the *Journal's* Editorial Board.

*ford Shorter Dictionary* says the adjective *professed* originally meant that one had "taken the vows of a religious order." By 1675, the word had been secularized to mean an individual who "professes to be duly qualified; professional." "Profession" originally implied the act or fact of professing, but it came to mean an "occupation which one professes to be skilled in and to follow.... A vocation in which professed knowledge of some branch of learning is used in its application to the affairs of others, or in the practice of an art based upon it. Applied specifically to the three *learned* professions of divinity, law, and medicine."

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"...the trouble and danger  
(with clinical guidelines) is that  
they almost always become  
recipes in the hands of bureaucrats  
and intellectual midgets."

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There are two distinguishing marks of a profession: 1) it has an act of professing (the professor claims a greater knowledge of a given field than laypeople); 2) it has members who are learned (that is, their profession is undergirded by accrued knowledge and by scholarship). To be and remain professional, one must be a learner throughout one's life, a learner ever skeptical about the status quo. The charlatan who practices by rote is a mere pretender, not a true professional, but it is important to realize, particularly in our present environment, that advances in medicine are often made by what nowadays are called *outliers*—those who did not accept the "guidelines" or the "norms" of contemporary wisdom.

I believe that there are several dangerous threats to the education—education, mind you, not the *training*—of members and future members of our profession. Inside the medical schools of this country, people in responsible positions claim that we are overeducating doctors to "deliver" something that is now called "health care." These same individuals want the education of physicians to be shortened and lessened. I don't want to get embroiled here in a discussion of the proper curriculum for a medical school (I recently read that a curriculum review at the University of Wittenberg was what quickened Martin Luther's decision to nail the 95 theses to the church door), but I am totally convinced that any curriculum, no matter its length or content, must emphasize the sanctity of, a love for, learning or it will surely hastening the time when medicine will not be a profession.

Another disturbing threat to education is the propensity of certain bodies to hand down what are called "clinical guidelines." These, in effect, define the practice of medicine in a given sphere. I have nothing against true guidelines, but the trouble and danger is that they almost always become recipes in the hands of bureaucrats and intellectual midgets. Recipes belong in the kitchen, not in the clinic where they are anti-

intellectual. Recipes are designed to keep things—apple pies for instance—unchanged through the years. Therein lies their danger for the clinic. Recipes may preserve intact the taste and nostalgia of great-grandmother's walnut cake, but they are antithetical to the advancement of medicine. We must always challenge clinical recipes.

But far and away the most dangerous assault on medical education these days comes from the managed care industry (I here use the word "industry" advisedly). The attack comes from two fronts. The first is the stance taken by managed care leaders about the industry's lack of financial responsibility for medical education. At least since the end of World War II, medical education was partially underwritten by the National Institutes of Health and, later, the Health Care Financing Administration through Medicare. These agencies fully recognized the need to support medical education. As far as I can ascertain, the leaders of the managed care industry believe that managed care has no such responsibility, and they allot no money whatsoever for medical education. To the extent that the managed care industry becomes the major determiner of medical practice in this country, we can expect medical education to deteriorate. Students will become educational orphans; unless things change, we will return to pre-Flexnerian times.

The second front of assault on medical education is a more subtle one. Being subtle, it is perhaps even more dangerous. It has to do with the hostility of the managed care establishment toward individual practitioners who want to help in the education of medical students. American medical schools have made a great push to get medical students into contact with doctors in practice and away from the medical schools. I happen to believe that this is a good thing because it recognizes and demonstrates that medical student, medical school, and practicing physician are inextricably intertwined when medical education is done right. But it takes time from the physician's ordinary practice to do it right, and time is money. Teaching, therefore, takes money.

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"The real stumbling point here is...the  
fact that an entire system could not  
see that teaching enhances practice  
and makes good physicians better."

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At least some (and I suspect most) of the leaders of the managed care industry do not think that teaching helps one be a better doctor. Laurence Earley and I recently asked a physician who is a prominent administrator of North and South Carolina managed care whether there was a role in the managed care system for the education of medical students and house officers. "None that I can see," he said. And when we stared back incredulously, he added, "Well, if someone wants to get involved in teaching, we won't object. But we don't make any allowance for it in our practice, and anyone interested in



teaching must be willing to accept a salary reduction." The real stumbling point here is not the salary reduction for teaching, but the fact that an entire system could not see that teaching enhances practice and makes good physicians better. Unless wise and farseeing leadership steps forward to reverse these trends, medicine as a profession is doomed.

## Medicine as a Noble Profession

What do I mean when I say we must keep the profession noble? The dictionaries define *noble* as "having or displaying qualities of high moral character as honor, generosity, or courage." All these qualities are important for our profession, but I believe that generosity is the most important. And in the practice of medicine I take generosity to mean that the welfare of the patient always comes first.

Now this business about the patient always coming first is an old saw that all of us use, sometimes justly and sometimes to avoid an unpleasant or less than agreeable option such as going to church, a cocktail party given by your spouse's friends, and so on. I am reminded of one of the early works of one of my writing children, a first-grade piece entitled "Doctors" and composed over 30 years ago as an assignment to write about "community helpers." After extolling the many virtues of the good physician, my long-suffering offspring offered up this very thinly veiled complaint: "If you were going to see the fireworks on the Fourth of July and your father was going to take you in a car and suddenly your father was called to the hospital, don't get mad because he has to take care of a patient." The patient always comes first. The message to the writer's father was quite clear! But as important as the phrase is in defining physicians' deportment with individual patients, it embraces a much more profound meaning: that no matter what system is empowered to deliver medical care, its fundamental tenet should be that the welfare of the patient is *the* driving force of the system.

In my judgment, our profession has acted less than nobly during my professional lifetime. Doctors have always had an eye for money (some more than others—remember the doctor in Chaucer's *Canterbury Tales* who had a special love of gold, because gold stimulates the heart), but I do not believe that avarice is the root cause of the modern predicament in the delivery of medical care. Rather, I believe it stems from physicians' lack of genuine concern—both individual and corporate concern—for the welfare of the sick in our country. The tradition in our academic medical centers has been that scholarship and scientific inquiry are the underpinnings of medical care. This tradition has given us by far the best technical care in the world, while showing little or no concern about how medical care is, or should be, delivered.

Most academic medical centers have virtually no tradition of studying or being concerned with the economic and socio-

logic aspects of medical care. The lack of such a tradition, coupled with the fact that doctors have always been entrepreneurs, has led to our present quandary. The delivery of medical care is being planned by insurance companies and other groups outside our profession. There is nothing inherently wrong with this, but as more and more money enters the system, insurance companies, hospitals, and some doctors have entered into a conspiracy—an unwitting one in some cases—to make the delivery of medical care increasingly profitable and more expensive. When and where money abounds, the financial foxes move in.

Under the guise of saving money, we have seen the rise of medical care organizations that are, with few exceptions, driven by the profit motive rather than a desire to improve the welfare of the sick. In the worst of these systems, the welfare of the system's financial investors is uppermost in its design and operation; even in the best of them, the welfare of patients is rarely the linchpin of the system. As medicine becomes more and more a business, an industry, it ceases to be a service, and thereby to be a noble profession.

## A Glance Into the Future

Looking up, I must say that I have painted a rather dismal picture in black and various shades of gloomy gray. Am I as pessimistic as I sound? Yes, I am pessimistic about the immediate future. I genuinely believe that the situation will get worse. But I am optimistic about the more distant future, and I will tell you why. First and foremost, I am impressed by the present generation of medical students and house officers. They strike me as having much better developed and clearly defined social consciences than my generation—and those in between—had. Second, I believe that medical schools are taking more interest in clearly defining their role in and responsibility for the delivery of medical care. These factors will undoubtedly have a salutary effect on how medical care will be delivered in the future.

So, what must future physicians do to ensure the continued existence of our noble profession? At one level, I cannot tell you because I don't know. But on the most fundamental level, I can tell you, and with a high degree of certainty. It is this: Whatever system of medical care delivery evolves over the next few years, every member of the profession must insist that the system is designed, above all else, to protect the health of all citizens and to serve all those who are sick.

We must insist on the sanctity of learning and ensure that the knowledge necessary to our profession is protected and not replaced by an anti-intellectual attitude disguised as efficiency.

We must not—as many before have done—stand by passively while, by default, individuals with unclear or dishonorable motives run and thereby ruin the system.

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# Health Watch

VOL. 58 - NO. 5 - NOVEMBER / DECEMBER 1997

## More Important Smoking Information

### ENVIRONMENTAL TOBACCO SMOKE: THE SMOKE THAT'S AROUND YOU

Robert W. Monteiro, MD

#### What is Environmental Tobacco Smoke?

Environmental Tobacco Smoke (ETS) is the smoke that is emitted into the air from lighted cigarettes, pipes, or cigars. It also includes the smoke that is exhaled from smokers.

Some other names for this include:



- Secondhand Smoke
- Sidestream Smoke
- Passive Smoke
- Involuntary Smoke

*Robert W. Monteiro, MD, is an internist in a group practice in Pollocksville. He completed his residency at the Mayo Clinic in Rochester, MN, and received his MD degree from the George Washington University School of Medicine in Washington, DC.*

#### Is exposure to ETS a threat to your health?

Tobacco smoke in the air contains over 400 chemical substances, with as many as 200 of them being toxic and 40 of them being carcinogens or cancer-causing agents! The risk of tobacco smoke to smokers has been well-documented. Smoking is responsible for more than 400,000 deaths per-year in the United States alone. Nicotine, carbon monoxide, formaldehyde, and many carcinogens are found in ETS, some of them in higher concentrations because they are not filtered or absorbed in the smoker's lungs.

In 1986, the surgeon general reported that involuntary smoking can cause lung cancer in nonsmokers. The United States Environmental Protection Agency Lists ETS as a Group A carcinogen, indicating it is a substance proven to cause cancer in



humans. ETS is estimated to cause 3,000 lung-cancer deaths each year. Nonsmoking spouses of heavy smokers have almost twice the risk of developing lung cancer. According to the Centers for Disease Control (CDC), ETS causes 30 times as many lung cancer deaths as all regulated air pollutants combined. Lung cancer is not the only health concern. Diseases, such as asthma, allergies, emphysema, chronic bronchitis, and heart disease, are all affected by exposure to ETS.

The Environmental Protection Agency (EPA) ranks indoor air pollution as one of the top five environmental risks to public health. Most people spend 90% of their time indoors, and concentrations of many pollutants, including ETS, are significantly higher indoors.

### **Children and ETS**

Infants and young children exposed to ETS have increased risk of developing bronchitis and pneumonia. It is estimated that between 150,000 to 300,000 cases per-year develop in children exposed to their parents' ETS, and 15,000 of those cases result in hospitalization.

In asthmatic children, ETS causes more frequent episodes and increased severity of symptoms. ETS is also a risk factor for new cases of asthma in children who did not have symptoms prior to exposure.

Children exposed to ETS have symptoms of respiratory irritation, including cough, wheezing, and excess phlegm formation. ETS can also lead to a buildup of fluid in the middle ear—a condition that often requires surgical treatment.

Infants are three times more likely to die from Sudden Infant Death Syndrome (SIDS), if their mothers smoke during and after pregnancy.

### **ETS in the Workplace**

The 1986 Surgeon General's Report concluded that separation of smokers and nonsmokers in the same airspace reduces, but does not eliminate, exposure. According to the CDC, there is no safe level of exposure to a cancer-causing substance. Workers exposed to ETS are 34% more likely to get lung cancer.

Coworkers with existing health problems can have worsening of symptoms when exposed to ETS, and even workers without such conditions can suffer eye irritation, sore throat, cough, and hoarseness.

As of 1991, about 85% of businesses had adopted some form of smoking policies. This was an increase from 36% in 1986.

Among workers exposed to hazardous materials, exposure to tobacco smoke may increase disease and disability associated with those materials. In asbestos workers who smoke, there is a 50-fold risk of developing lung cancer, compared to a five-fold risk in those who do not smoke.

### **ETS in Public Places**

A number of laws have been passed at both national and local levels to protect citizens from ETS.

Airline flights lasting six hours or less are smoke-free.

All interstate bus travel is smoke-free.

Many airports, shopping malls, and restaurants are smoke-free.

Schools and hospitals are either smoke-free or have designated smoking areas.

## What You Can Do About ETS

### ***At Home:***

Don't smoke in your home.

If you live with a smoker, ask him/her not to smoke in the home or at least to limit smoking to a well-ventilated designated area.

Don't allow baby-sitters or others who work in your home to smoke.

Place signs around your home designating it a smoke-free place.

Be supportive of smokers by helping them quit. Remember, nicotine is an addictive substance and quitting smoking is very difficult. Available aids include nicotine gum, nicotine patches, smoking-cessation programs, and support groups.

### ***Where your children go:***

Check smoking policies at daycare centers, pre-schools, and schools.



### ***At work:***

The EPA recommends that every company have a smoking policy.

If your company does not have a policy, work with management to develop one.

The most effective policies prohibit smoking indoors.

If smoking is allowed indoors, it should be only in rooms that are specially designed to prevent smoke from escaping to other areas of the building. Air from those rooms should be directly exhausted to the outside and not recirculated. Nonsmokers should not have to use that room for any purpose.

Employers should be encouraged to support smoking-cessation programs.

### ***In Public:***

If asked, let smokers know that you do mind if they smoke around you.

Go to restaurants that are smoke-free or have smoke-free sections.

Support legislation promoting smoke-free public places.

Environmental Tobacco Smoke is a risk to you and your loved ones. Take time to be aware of your exposure and what you can do to protect yourself and those around you.



## Smoking Cessation

All this hullabaloo about the “global settlement” concerning tobacco may have made some smokers contemplate quitting, or actually decide to quit. If you are one of them, this article is for you.

First, congratulations—this is the most important step you can take for your health! Here are some pointers: You should start by setting a quit date, ideally within the next two weeks, and, hopefully, at a time when you may be as close to “stress-free” as possible. Arrange for some support. Tell your spouse, coworkers, and friends of your plans. If your spouse is a smoker, perhaps the two of you can quit together, eliminating the temptation provoked by seeing someone else smoking, while you are trying to stop.

In the days before your quit date, remove cigarettes from all stockpiles—in your desk, car, locker at work, etc. If you are not pregnant and haven’t had a recent heart attack, buy a supply of the patches or gum. Choose the size patch with the milligrams corresponding as closely as possible to the number of cigarettes you smoke per-day. Review mentally what happened during past efforts at quitting. Try to plan how you would cope with any events (like parties or arguments) or emotions (like getting angry or depressed) that led to relapse.



Call your physician or other healthcare provider and gain their support and cooperation. If possible, enroll in a program offered by a hospital, the Cancer Society, or the Lung Association that’s in place now (in Guilford County, call Project Assist, 333 6000, for help).

On the quit date, apply the patch or use the gum and do not smoke—not even a single puff—ever again. Anticipate withdrawal symptoms from some reduction in nicotine blood levels (even while wearing the patch), including irritability and/or insomnia and/or dry mouth, which may last about two weeks. After four weeks, reduce the size of the patch or gum and expect a return of the withdrawal symptoms. After eight weeks, stop the gum or patch and another round of withdrawal symptoms can be anticipated.

Weight gain often, but not invariably, occurs while people quit smoking, but it almost always is less than 10 pounds. Don’t try to diet, but if you must, have something in your mouth. Try chewing gum or eating low-calorie foods, such as carrots or celery sticks.

Try and stay away from people who are smoking at work or in bars, and minimize or eliminate alcohol intake, as that might reduce your resistance to the temptation to smoke. If it is not medically counterindicated, an exercise program, such as walking or jogging, swimming, or riding a bike, may be enjoyable and convince you of your new ability to build stamina, now that your red blood cells are free of carbon monoxide and can handle more oxygen.

Be positive! Remember that half of all people who have ever smoked have quit successfully, and *you* can too!

*Richard J. Rosen, MD*

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\*Figures are for Taxable Money Market, Short-Term Corporate, GNMA, Municipal Money Market, Municipal Intermediate, and Municipal General Bond Fund categories, respectively, as of 9/30/97. Source: Lipper Analytical Services, Inc. \*\*\$500 minimum. \*\*\*Some income may be subject to state and local taxes and the federal alternative minimum tax.

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## CME Calendar

### *November 13-16*

#### **NC Medical Society's Annual Meeting**

Place: Pinehurst Resort & Country Club

Info: Alan Skipper, NCMS, 800/722-1350 or 919/833-3836,

Internet: <http://www.ncmedsoc.org>

### *November 14*

#### **Annual Cancer Symposium:**

##### **NC Chapter, American College of Surgeons**

Place: Washington Duke Inn & Golf Club, Durham

Fee: \$50

Info: Office of CME, Duke University Medical Center,  
Box 3108, Durham 27710, 919/684-6485,  
fax: 919/681-7462

### *November 14-15*

#### **3rd Annual Pituitary Days**

Place: Omni Hotel, Charlottesville, VA

Info: Bebe Moore, UVA Office of CME, 800/552-3723,  
804/924-5310

### *November 14-15*

#### **1997 Medical News Reporting Symposium**

Place: Howell Hall, UNC School of Journalism

Fee: \$150

Info: UNC School of Journalism and Mass Communication, CB# 3365, Chapel Hill 27599-3365,  
919/962-4078

### *December 3-7*

#### **Winter Family Physicians Weekend & Annual Meeting**

Place: Grove Park Inn Resort, Asheville

Info: sponsored by NC Academy of Family Physicians,  
contact Mollie Rasor, 800/872-9482

### *February 27-28*

#### **Annual Geriatrics Symposium**

Place: J. Paul Sticht Center, Wake Forest University  
School of Medicine

Info: Office of CME, 910/716-4450 or 800/277-7654

### *March 1-4*

#### **National Comprehensive Cancer Network Conference: Practice Guidelines and Outcomes Data in Oncology**

Place: Marriott Harbor Beach Hotel, Fort Lauderdale, FL

Info: NCCN Conference, c/o PRR, 516/424-8900, ext. 300



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# Gastroesophageal Reflux Disease

## Pill, Blade, or Laparoscope?

Kevin E. Behrns, MD, Mark J. Koruda, MD, and Charles A. Herbst, Jr., MD

Gastroesophageal reflux disease (GERD) is the most common disorder of the esophagus and one of the most prevalent conditions of the gastrointestinal tract. Approximately 40% of adult Americans experience heartburn at least once per month; 10% have symptoms weekly.<sup>1,2</sup> Many patients self-medicate with antacids or with over-the-counter histamine ( $H_2$ ) receptor antagonists, but they do not discuss heartburn with their doctors unless their symptoms are not controlled medically. The end result is that GERD leads to the worldwide expenditure of \$2 to \$3 billion per year for prescription and nonprescription drugs.

### Pathophysiology of GERD

The prevalence of GERD (and its associated medical and socioeconomic impact) has led to intense investigation of its pathophysiology during the past 50 years. Current understanding of the mechanism of reflux centers on lower esophageal sphincter (LES) pressure.<sup>3</sup> The LES is an anatomically indistinct, 2-3 cm long region of increased pressure in the distal esophagus. It relaxes upon swallowing, but this sphincteric mechanism impedes reflux of gastric contents into the esophagus, thereby protecting the integrity of the esophageal mucosa. Gastroesophageal reflux occurs when the intragastric pressure exceeds LES pressure, forcing gastric contents into the low-pressure thoracic esophagus. A hypotensive LES allows prolonged contact of noxious gastric juices with the esophageal mucosa, resulting in esophageal injury. Recent research has demonstrated that even transient relaxation of the LES may cause GERD.<sup>4</sup> A number of humoral substances, medica-

tions, and dietary substances decrease LES pressure and increase or initiate reflux (Table 1).

In addition to LES pressure, several other anatomic and physiologic factors are thought maintain the gastroesophageal barrier: 1) an intra-abdominal location of the LES, 2) the volume and composition of gastric contents, and 3) extrinsic mechanical factors such as the "flap valve" action of the diaphragm and clearance of esophageal contents.<sup>3</sup> The relative importance of each of these factors in the genesis of GERD is largely unknown, but the role of anatomic valve-like action of the diaphragm and the intrathoracic location of the gastroesophageal junction are less important than previously thought. Gastric volume and acid content, however, are directly correlated with the duration of reflux.<sup>3</sup> Clearance of acid by organized, peristaltic esophageal contractions also is an important mechanism protecting the esophageal mucosa.

In summary, GERD results when a transiently hypotensive LES allows reflux of acid gastric contents that are poorly cleared by esophageal peristalsis. The final result is prolonged contact of irritative acid material with the esophageal mucosa.

**Table 1. Endogenous and exogenous substances that decrease lower esophageal sphincter pressure**

Endogenous	Exogenous
Cholecystokinin	Anticholinergics
Estrogen	Barbiturates
Glucagon	Calcium channel blockers
Progesterone	Caffeine
Somatostatin	Diazepam
Secretin	Dopamine
Calcitonin gene-related peptide	Meperidine
Gastric inhibitory peptide	Prostaglandins E1 and E2
Neuropeptide Y	Theophylline
Vasoactive intestinal peptide	Peppermint/spearmint
	Chocolate
	Coffee
	Ethanol
	Dietary fat

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## Complications of GERD

Exposure of the esophageal mucosa to gastric acid causes inflammation that can lead to a number of complications: ulceration, bleeding, and stricture formation.<sup>5</sup> In addition, longstanding reflux can impair esophageal motor activity, further decreasing esophageal clearance. Refluxed gastric material that enters the upper airway can cause voice changes (hoarseness), sinusitis, bronchitis, or recurrent (aspiration) pneumonia.<sup>6</sup> Finally, acid-induced metaplasia of squamous to columnar epithelium (Barrett's esophagus) may lead to dysplasia or invasive esophageal carcinoma.

## Clinical Manifestations

Heartburn is the classic symptom of GERD. Other symptoms include dysphagia, odynophagia, regurgitation, hypersalivation (water brash), and belching. GERD may present with extra-esophageal symptoms such as chest pain, respiratory, and ear, nose, and throat problems.<sup>6</sup> One study suggests that GERD may be the cause of noncardiac chest pain in nearly 50% of cases.<sup>7</sup> Chronic cough, recurrent aspiration pneumonia, and pulmonary fibrosis may be due to or worsened by GERD. In fact, there is a close association between asthma and acid reflux in three-quarters of asthmatics.<sup>6</sup> Hoarseness, sore throat, halitosis, vocal cord granuloma, dental decay, even laryngeal cancer may also be caused by intermittent aspiration of gastric content.

## Evaluation

Patients with a classic history of pyrosis (heartburn) and regurgitation may be treated empirically with acid-suppressing medications without the need for diagnostic studies.<sup>8,9</sup> Investigation should be performed when the symptoms do not respond promptly to medical therapy, or when dysphagia or other symptoms indicate complicated or atypical GERD, and before considering patients for anti-reflux surgery.

Objective evaluation of GERD means examination of the esophageal mucosa and documentation of motor activity and the extent of reflux.<sup>10</sup> Esophagogastroduodenoscopy is used to evaluate the mucosa for evidence of esophagitis, ulceration, stricture, and metaplastic epithelium. The presence of a hiatal hernia may be noted. A barium esophagogram may also demonstrate those findings but is particularly useful in patients suspected of having a complex hiatal hernia or a shortened esophagus from longstanding GERD.

Esophageal manometry provides important information about LES tone, the presence of coordinated esophageal contractions and esophageal motor disorders that can mimic GERD.<sup>11,12</sup> Manometry is necessary in surgical candidates to ensure that there is sufficient esophageal peristalsis to propel a food bolus through a complete or partial fundoplication.

A 24-hour pH recording can determine the amount of time

the esophagus is exposed to gastric acid ( $\text{pH} < 4$ ). Scoring systems have been developed to allow better interpretation of pH readings, and new, 2-channel pH probes (one probe located 5 cm proximal to the lower and one 5 cm distal to the upper esophageal sphincter) document the extent of esophageal reflux. Rarely, radionuclide gastric emptying studies are needed to document pulmonary aspiration.

No single battery of examinations is sufficient to assess GERD; the clinical presentation should guide selective use of examinations based on the information desired.

## Medical Management of GERD

Treatment begins with behavioral modifications aimed at reducing acid reflux and minimizing the duration of contact between refluxed material and the esophageal mucosa.<sup>9</sup> The head of the bed should be elevated four to six inches to promote gravity-dependent drainage of esophageal content. Overweight patients should lose weight, and tobacco and alcohol consumption should be prohibited. Fatty foods, chocolate, and carminatives (spearmint, peppermint) should be minimized because they decrease LES pressure. Medications that decrease LES pressure or delay gastric emptying (phenothiazines, tricyclic antidepressants, theophylline preparations, calcium channel blockers) should be avoided if possible.

Patients who remain symptomatic despite lifestyle modifications can use antacids or be treated empirically with  $\text{H}_2$  receptor antagonists, prokinetic agents (metoclopramide, cisapride, domperidone), or sucralfate. When administered in conventional doses,  $\text{H}_2$  antagonists (cimetidine, famotidine, nizatidine, ranitidine) relieve GERD symptoms and heal esophagitis within 12 weeks in one-half to two-thirds of patients.<sup>13</sup> If relief is incomplete, the dose of the agent may be increased, but there is little demonstrable benefit from prescribing more than twice the recommended dose. When used in very high doses (up to eight times the conventional dose),  $\text{H}_2$  blockers are expensive and their long-term safety has not been established. Proton pump inhibitors (omeprazole, lansoprazole) are the best inhibitors of gastric acid secretion and the most effective treatment of reflux esophagitis. Twenty milligrams of omeprazole daily for eight weeks produces esophageal healing in 80%-100% of patients.<sup>8</sup>

Prokinetic agents can increase esophageal motility, LES tone, and gastric emptying, thereby decreasing reflux. Studies demonstrate clinical benefit from these medications, even though postprandial pH monitoring may not show decreased reflux.<sup>8</sup>

## Surgical Management of GERD

$\text{H}_2$  antagonists, proton pump inhibitors, and prokinetic agents do not correct the underlying pathophysiology of reflux. Consequently, in most patients, reflux symptoms return when these agents are stopped, but the indication for antireflux surgery can



no longer be summarized by the statement "when medical therapy fails." Our increased understanding of the pathophysiology of GERD underscores the requirement for lifelong medical therapy in many patients, and surgery may be the only way to eliminate the need for medication.

Surgery endeavors to reduce and repair any hiatal hernia, augment LES pressure, and fix the lower esophagus within the abdominal cavity. During the past 20 years, several operations have been proposed: a complete (Nissen) or partial (Belsey) fundoplication, or a posterior gastropexy (Hill procedure).<sup>14-18</sup> When performed properly, the success rate of each of these operations approaches 90%, with a morbidity rate of 10%.<sup>14</sup>

Recently, a Department of Veterans Affairs Cooperative Study<sup>1</sup> compared the efficacy of medical and surgical therapies for GERD. Patients were randomly assigned to receive either continuous medical therapy (antacid tablets and ranitidine taken every day regardless of symptoms), or symptomatic medical therapy (drug therapy used only to control symptoms), or surgery (an open Nissen fundoplication). The symptoms and endoscopic findings improved in each group, but surgical therapy was significantly better than medical therapy. Overall surgical patients were more satisfied. Two patients failed surgical therapy because intractable heartburn continued and 10 patients (15%) had operative complications including splenectomy and esophageal and gastric perforations. This prospective, randomized study pre-dated the availability of proton pump inhibitors, but it clearly demonstrates that surgical therapy is superior to medical therapy without omeprazole.

Over the past few years, laparoscopic approaches that incorporate the operative principles of open surgery have gained popularity. One series of 300 laparoscopic antireflux procedures reported no mortality and an overall morbidity of 12%.<sup>19</sup> Side effects included new-onset dysphagia (10%), gas/bloat (9%), and nausea (6%). Quality of life improved significantly after surgery. The Nissen procedure is the most com-

monly performed laparoscopic fundoplication, but a partial laparoscopic fundoplication (Toupet procedure) can be performed in patients with poor esophageal motility.<sup>20</sup>

During the past three years, the Gastrointestinal Surgery Service at the University of North Carolina Hospitals has obtained results of laparoscopic fundoplication that parallel those in the literature. Ninety-five percent of procedures were completed laparoscopically and patients discharged one to four days after surgery. Studies comparing open versus laparoscopic procedures show less postoperative pain and a shortened time to return to work or full activity with the laparoscopic approach. Eighty-five percent of operated patients report satisfactory results, but long-term follow-up studies of laparoscopic antireflux surgery are not yet available.

## The Pill, the Blade, or the Laparoscope?

Based on the current understanding of gastroesophageal reflux disease we suggest the following management plan: Symptomatic patients should be placed on behavioral modification and H<sub>2</sub> antagonists. If symptoms persist beyond four weeks, esophagogastroduodenoscopy is performed and findings of GERD are treated with a proton pump inhibitor for eight to 12 weeks. Patients who become asymptomatic and heal their esophagitis should stop their acid suppression therapy. If symptoms or esophagitis persist or recur within four weeks they should be evaluated with a 24-hour esophageal pH probe and offered long-term proton pump inhibition or surgery if esophageal acid exposure is increased. Symptomatic relief following open operation can be expected in 85% to 90% of patients with GERD. Early follow-up studies suggests that laparoscopic antireflux operations are effective and should be considered in the management of these patients. □

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## Actinic Keratosis

by Jeff Drayer

Is their skin white and pale?  
Do they get sun in heavy doses?  
Does their epidermis scale?  
Sounds like actinic keratosis

Is the stratum corneum weird?  
Is the patch ill-marginated?  
(Carcinoma's to be feared  
If it looks really indurated)

Then check the dorsum of the hand  
The forearms, neck and chest  
And if nude sunbathing's planned  
Please make sure you check the breast

But don't jump to conclusions  
These could be BCCs\*  
There could be viral inclusions  
Or even Bowen's disease

But perhaps one day you might  
Be afraid the diagnosis will be missed  
So biopsy the site  
And send it to the pathologist

Is the dysplasia partial-thickness?  
Is the dermis now inflamed?  
Then you'll know that for this illness  
Heliosis can be blamed

Now, prevention can be tough  
But big hats and long sleeves I  
Cannot encourage enough  
'Specially is they've got nevi

Topical treatment's pretty good  
Halt DNA with 5 FU†  
But your first line really should  
Be cryosurg with LN<sub>2</sub>

So to avoid the squamous cell  
And all that nasty apoptosis  
Keep your body covered well  
And prevent actinic keratosis

\* basal cell carcinomas    † 5-fluorouracil

*Mr. Drayer just completed his dermatology rotation at Duke University School of Medicine, where he is a fourth-year student.*

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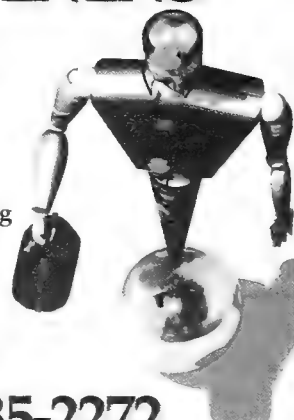
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# Psychosocial Factors and Coronary Disease

## A National Multicenter Clinical Trial (ENRICH)

### With a North Carolina Focus

James A. Blumenthal, PhD, Christopher O'Connor, MD, Alan Hinderliter, MD, Kenneth Fath, MD, Sadanand B. Hegde, MD, Gary Miller, MD, Joseph Puma, MD, William Sessions, MD, David Sheps, MD, Bosh Zakhary, MD and Redford B. Williams, MD

Psychosocial factors like depression, social isolation, and low socioeconomic status (SES) worsen the prognosis of patients with coronary artery disease (CAD), and are independent of other known predictors of prognosis. Fortunately, several experimental studies, although limited in scale and methodology, provide encouraging evidence that therapeutic interventions can ameliorate the adverse impact of psychosocial factors. We summarize here the rationale for a clinical trial, sponsored by the National Institutes of Health, to evaluate the effects of a psychosocial intervention in reducing morbidity and mortality in patients with CAD.

### Psychosocial Factors and Prognosis in CAD

**Social isolation.** Ruberman et al<sup>1</sup> found that socially isolated patients were more likely than other patients to die after myocardial infarction (MI). Unfortunately, the authors could not adjust for potentially confounding factors because they had only indirect measures of disease severity. Other studies have not been so limited.

Case et al<sup>2</sup> found that 16% of post-MI patients who lived alone (16% of the total sample) were dead within six months compared to only 9% of those who lived with someone else. In a study of patients with angiographically documented CAD, Williams et al<sup>3</sup> noted that 50% of patients who were unmarried

and had no confidant (3% of the total sample) were dead after five years compared to only 17% of those not so socially isolated. Given the large sample sizes of these two studies (1234 and 1368 subjects, respectively), the strong effects, and the ability of the investigators to statistically control for known biomedical predictors, they provide compelling evidence that social isolation contributes importantly to poor outcome in patients with CAD.

In a study of 194 elderly post-MI patients, Berkman et al<sup>4</sup> reported that having emotional support *before* an MI was the most powerful and significant predictor of survival after MI; 55% of patients without support died within a year, compared to only 27% of those with two or more sources of support.

In all of the above studies, the impact of social isolation was independent of left ventricular ejection fraction and other biomedical prognostic factors. No study observed enough minority patients to ascertain the impact of social isolation by race, but the studies did include enough women to show that social isolation was associated with a poor prognosis for both men and women.

**Depression.** Depression increases morbidity and mortality after an MI. Early work by Frasure-Smith et al<sup>5</sup> used the General Health Questionnaire (GHQ) to assess anxiety and depression; they found that post-MI patients GHQ scores  $\geq 5$  were at increased long-term risk for reinfarction or cardiac death, even

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after controlling for disease severity. A more recent study<sup>6</sup> demonstrated that depression was the important component of the distress. The 16% of post-MI patients who met modified criteria for major depression (symptoms *since* the MI rather than over the preceding two weeks) were more than five times more likely to die during the ensuing six months than were nondepressed patients. The effect was independent of heart failure, ejection fraction, or other clinical indicators of disease severity.

Frasure-Smith et al<sup>7</sup> recently found that depressed mood short of major depression also increases risk. Patients with Beck scores  $\geq 10$  (30% of the total sample) were more likely to die than those with lower scores, especially during the period between six and 18 months after the MI. Ahern et al<sup>18</sup> found an association of higher Beck scores with higher mortality in a sample of 502 MI patients. Duke researchers have documented a similar effect using a different measure of depression (the Zung Self-Rating Depression Scale) in a sample of more than 1300 patients with angiographically documented CAD seen during the late 1970s and followed to the present.<sup>9</sup>

Another factor related to depression that may increase the risk of adverse cardiac events. It is the constellation of symptoms known as "vital exhaustion": lack of energy, irritability, and feelings of demoralization. Vital exhaustion increases the short-term risk of MI and the risk of recurrent cardiac events after coronary angioplasty.

**Low socioeconomic status.** Low socioeconomic status (SES) increases the risk of CHD in healthy persons and worsens the prognosis for patients with established CHD. Ruberman et al<sup>1</sup> found that low education level was a potent predictor of mortality, although it was not independent of social isolation. Williams et al<sup>3</sup> found that the five-year mortality rate of CAD patients with incomes under \$10,000/year was twice that of patients with incomes over \$40,000/year, an effect independent of social isolation or disease severity. Case et al<sup>2</sup> found that having less than a 12th-grade education predicted the recurrence of cardiac events, independently of social isolation or physical risk factors.

These studies suggest that low SES contributes to poor prognosis in CAD beyond the impact of social isolation, but it is possible that at least some of the adverse effects of low SES are mediated by its associations with depression and social isolation. Depressive symptoms are inversely related to SES in the general population and Frasure-Smith et al<sup>10</sup> found that depression was higher in post-MI patients who were either socially isolated or had a low SES (based on income).

**Other psychosocial factors.** Compared to the data on social isolation, depression, and SES, there is relatively little information about the prognostic significance of other psychosocial risk factors in CAD patients. Hostility and job strain predict increased risk for CAD in *healthy* subjects, but we do not know whether they add prognostic information for patients with established CAD. There is some suggestive evidence, however.

Ironson et al<sup>11</sup> found that simply recalling an episode of anger significantly lowered left ventricular ejection fraction in CAD patients. Helmers et al<sup>12</sup> found that women and middle-aged men with CAD and high hostility scores had more myocardial ischemia than those with low scores.

The prognostic significance of myocardial ischemia induced by mental stress was evaluated in a study of 131 patients with stable CAD.<sup>13</sup> After withdrawal of anti-ischemic medications, patients were exposed to a battery of mental stressors (mental arithmetic, mirror tracing, public speaking, and the Type A structured interview) and standard exercise testing. During testing, one-third of patients showed new or worsening wall motion abnormalities and two-thirds exhibited myocardial ischemia. Patients were followed for two or more years (mean = 44 months), during which time there were two deaths, four nonfatal MIs, 17 coronary angioplasties, and 10 coronary bypass grafts. Adverse events were more than twice as likely to occur in patients who exhibited mental stress-induced ischemia than in patients who did not (27% vs. 12%;  $p < .05$ ). Adverse events were twice as frequent in patients with mental stress-induced ischemia compared to patients with exercise-induced ischemia. Mental stress-induced ischemia added significant prognostic information over and above exercise testing.

## How Psychosocial Factors Affect Prognosis

We cannot yet specify the mechanisms by which psychosocial factors contribute to cardiac events, but there are several likely ways: 1) Depressed patients have increased sympathetic and decreased parasympathetic nervous system function. Both are biologically plausible contributors to ventricular arrhythmias, platelet activation/aggregation, and increased myocardial oxygen consumption, all of which are involved in both CHD death and reinfarction. 2) Depression-induced activation of the pituitary-adrenal axis produces high levels of cortisol, which can potentiate and prolong the effects of catecholamines. 3) Depression is associated with higher rates of cigarette smoking in both healthy persons and CAD patients. 4) Depressed CAD patients adhere less well to medical regimens.

Social support helps patients undertake smoking cessation and hypertension control programs. Not only do socially isolated patients not engage in behaviors that reduce their risk, but patients with low social support secrete more catecholamines when subjected to stressful situations. Social support attenuates blood pressure responses to mental stressors and neuroendocrine function.

## Psychosocial Interventions Can Improve Prognosis

Several randomized trials have looked at whether reducing the adverse impact of psychosocial factors can alter prognosis in CAD. These studies suggest that psychosocial interventions



can reduce the excess morbidity and mortality incurred by adverse psychosocial risk profiles. The Ischemic Heart Disease (IHD) Life Stress Monitoring Program<sup>14,15</sup> randomly assigned 461 post-MI men to receive either usual care or an experimental intervention in which a monitor called once a month to administer the General Health Questionnaire. Whenever a patient's GHQ score was  $\geq 5$ , an assigned nurse would visit the patient at home and work with him until the problems were resolved or he was able to deal with them (and his GHQ score had returned to normal). No single theoretical approach to stress reduction was used; rather, the nurses were told "to try and lower the stress levels of [the] patients using whatever strategies and interventions seemed appropriate...." This intervention provided patients with both instrumental social support (it helped them deal with problems) and emotional social support (it provided a caring human being to listen to their problems).

Mortality in the experimental group began to fall relative to the usual care group after four months; by one year, the experimental group had 47% less cardiac mortality than the usual care group. Interestingly, 11% of the control patients on beta blockers died compared to only 3% in the experimental group, suggesting complementary effects of stress management and medical therapy. Over five years, patients in the experimental group who had high distress (GHQ  $\geq 5$ ) had significantly fewer recurrent MIs ( $p=0.004$ ) and cardiac deaths ( $p=0.006$ ). Psychosocial intervention led to improved prognosis only in those with high distress; patients with low distress (GHQ  $< 5$ ), receiving either usual or experimental care, had lower mortality than the high distress group that got usual care.

The IHD Life Stress Monitoring study had several limitations: 1) No women were studied, even though women are as susceptible to psychosocial factors as men<sup>2,3</sup> and have an even poorer prognosis following MI than men. We need to study women in sufficient numbers to evaluate the impact of interventions. We also need to study minority groups in any future intervention trials, both to document the effect of psychosocial factors on prognosis and to demonstrate whether those factors can be ameliorated. 2) The control group contained significantly more low SES patients than the experimental group. This may indicate a failure of randomization or a bias (maybe low SES patients did not accept randomization to the experimental group). However, post hoc analysis suggests that, even though underrepresented in the experimental group, low SES patients had even more improvement in prognosis than high SES patients. Moreover, after controlling for SES differences between control and treatment groups, assignment to the experimental group was significantly associated with survival. Future studies will need to include adequate numbers of low SES patients and to ensure that they are assigned in adequate numbers to treatment and control groups. 3) No process variables (adherence to regimen, presence of myocardial ischemia or arrhythmias assessed by ambulatory ECG) were monitored in the IHD Life Stress Monitoring Study. These might help explain why the intervention worked and for whom.

An even larger study, the Recurrent Coronary Prevention

Project,<sup>16</sup> randomly assigned 1035 men and women who had suffered an MI within the preceding six months to cardiologic counseling or to an intervention that included both cardiac counseling and weekly group meetings designed to reduce Type A behavior. Subjects were given homework "drills," and the results of their efforts were shared at the meetings. The intervention successfully reduced Type A time urgency and hostility; three years later, significantly reduced Type A behaviors were seen in those who had attended the counseling treatment group. More importantly, CHD recurrence rates were significantly lower (7%) in the treatment group than the control group (13%), and there was a trend toward reduced CAD mortality.<sup>17</sup> Unfortunately, this study enrolled too few women and minority group members to evaluate any impact on them. Nor were there any reports on process variables that might identify mediators of the treatment benefits.

A third study, by Ornish et al.,<sup>18</sup> randomized 48 patients with angiographically documented CAD to usual care ( $n=20$ ) or a comprehensive lifestyle change program ( $n=28$ ) consisting of exercise, low-fat vegetarian diet, smoking cessation, stress management training, and twice-weekly group support meetings. Adherence to all aspects of the program was carefully monitored. Compared to the usual care group, patients in the experimental group showed more regression of angiographically documented CAD lesions after one year in the program. Patients who best adhered to the program showed the most pronounced regression.

Given the extensive intervention used by Ornish et al, it is not possible to identify specific aspects of the program that led to regression of arterial lesions. Social support at twice-weekly group meetings and may have played an important part, but since the study design did not permit evaluation of the various components, it is only possible to say that the "package" produced observable benefits. The fact that those who best followed the total program experienced the greatest decrease in arterial stenoses means that future trials need to assess adherence to the intervention regimen.

Other randomized studies of behavioral intervention have lacked adequate power to detect group differences, but a recent Duke study of mental-stress-induced myocardial ischemia reported that patients who underwent 16 weeks of stress management training had a nearly fourfold lower relative risk for further cardiac events compared to usual-care controls.<sup>19</sup> The study had several shortcomings, including lack of randomization and limited sample size ( $n=107$ ), but the findings indicate that stress management may effectively reduce stress-induced ischemia and that reduced ischemia can lead to reduced risk for future cardiac events.

These intervention trials have common features. All included direct social support—group meetings or nurse home visits—over and above what patients had access to on their own. This suggests that provision of social support has promise as a means of improving prognosis in established CAD. Studies have included instruction in stress management techniques—relaxation skills, cognitive strategies to decrease anger, com-

munication and assertion skills, time management, and the like. In addition to whatever direct benefits these components may provide (such as decreased sympathetic activation because of relaxation and anger control), they also increase social support indirectly because patients who are not hostile toward family and friends are more likely to obtain social support. Finally, there is great economy in Frasure-Smith's use of a stepped-care approach wherein an intervention is activated only when a patient's stress reaches a threshold (GHQ  $\geq 5$ ) and it is then continued only until the problem is resolved.

## Treating Depression After MI

In addition to psychosocial interventions that provide post-MI patients with social support, it is feasible to treat depression in coronary patients.<sup>20</sup> To date, no study has examined the impact of such treatment on reinfarction or survival. Given the growing evidence that depression puts patients at excess risk, such studies are clearly and urgently needed. For mild-to-moderate depression, psychotherapeutic approaches such as cognitive behavior therapy (CBT), interpersonal psychotherapy, and behavior therapy are effective. For severe or psychotic depression, current practice calls for medication and adjunctive psychotherapy, although over the long run, one study<sup>21</sup> suggests that CBT is as good as antidepressant medications in preventing recurrence.

For pharmacologic treatment of depression, the selective serotonin reuptake inhibitors (SSRIs) offer many advantages—in addition to their proven efficacy in treating depression—that are relevant to reducing morbidity and mortality in CHD. As we have already noted, increased sympathetic activation and cigarette smoking are likely mediators of increased morbidity and mortality in

## ENRICHD

### Enhancing Recovery in Coronary Heart Disease

This study seeks primarily to determine the effects of psychosocial intervention in post-MI patients who are depressed or have low social support. It will compare mortality and re-infarction in patients receiving experimental or usual medical care. Secondary objectives include evaluation of effects on other medical and psychosocial endpoints; in subgroups defined by gender, minority status, and etiology of psychosocial risk; and the conduct of exploratory studies of behavioral and physiologic mechanisms where feasible.

The study is a randomized, unblinded, clinical trial. Over three years, it will enroll 3000 post-MI patients with depression or low social support at eight participating clinical sites (Duke University, University of Alabama, University of Miami, University of Washington, Stanford University, Washington University, Harvard/Yale, and Rush-Presbyterian-St. Lukes Medical Center in Chicago). The University of North Carolina at Chapel Hill is the Coordinating Center. Patients identified in hospital will complete an baseline evaluation within 28 days and be randomized to experimental or usual care.

The *Psychosocial Intervention* consists of individual and small group interventions designed to treat depression and perceived low social support. Cognitive behavior therapy (CBT) will be the general treatment approach, but sertraline, a selective serotonin re-uptake inhibiting (SSRI) drug will be used to treat severely depressed patients or those patients who fail to benefit adequately from individual CBT/Group intervention. CBT is effective in depressed older adults and minorities, as well as those with severe depression. Because post-MI morbidity and mortality occur early, intervention must begin as soon as possible after the MI; it will consist of a minimum of four and up to six months of individual sessions and, if enough patients are available, group treatment. All patients will be followed until the last patient randomized has completed 18 months of followup. Thus followup of individual patients will range from a minimum of 1.5 years to a maximum of 4.5 years.

To be eligible to participate, patients must be recruited during a hospitalization for an acute MI (cardiac enzyme levels at least twice upper normal and either symptoms compatible with acute MI and/or characteristic evolutionary electrocardiographic ST-T changes or new Q waves). In addition, patients must be depressed (Beck Depression Inventory score  $\geq 10$ , and meet DSM-IV criteria for major or minor depression) or have low perceived social support (meet criterion score on ENRICHD Social Support Instrument) or both.

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CHD. By enhancing brain serotonin effects, SSRIs can decrease sympathetic outflow and help with smoking cessation. SSRIs may also have a favorable impact by decreasing appetite, decreasing anger and aggression, and depleting platelet serotonin stores.

## Summary

In addition to traditional risk factors (cigarette smoking, high blood pressure, and elevated cholesterol) psychosocial factors (depression, social isolation, and low socioeconomic status) have an adverse impact on prognosis of patients with CAD. Several studies of psychosocial and behavioral treatments provide encouraging evidence for the clinical efficacy of psychosocial interventions in CAD patients. A new, multicenter clinical trial now underway (see sidebar) will evaluate the impact of psychosocial interventions (compared to usual care) on all-cause mortality and nonfatal MI in post-MI patients with depression or perceived low levels of social support or both. □

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# "Children Are Not Supposed to Die"

## Combined Pediatric and Radiation Oncology Grand Rounds Addresses Severe Illness and Death

**Deputy Editor's note:** Why does premature death take the innocent? This question has troubled philosophers, theologians, and physicians. A recent grand rounds at Duke addressed this thorny problem. The *North Carolina Medical Journal* was there—at least our microphones were. We taped the meeting and an edited version of the transcription follows. We invite our readers to sit in on the discussion and continue it in the letters to the editor page.

—Edward C. Halperin, MD, Chair, Duke Department of Radiation Oncology

**Reverend James Travis,  
Director of Chaplaincy Services:**

Today we address a topic that poses a tremendous challenge to all: severe illness and death in children. We will pay particular attention to the views and needs of caregivers: physicians, nurses, social workers, and chaplains.

**Dr. Edward Halperin, Professor and Chair, Department of Radiation Oncology, Professor, Department of Pediatrics:**

The case for this morning is that of Jennifer, a 6-year-old girl who developed nausea and vomiting in May 1995. Her primary care physician treated her for a presumed viral gastroenteritis, but occipital headaches ensued, accompanied by ataxia. A cranial computed tomogram (CT) showed a large posterior fossa tumor. On May 19, 1995, a glioblastoma multiforme was removed, but postoperative magnetic resonance imaging (MRI) showed residual tumor in the operative bed without drop metastases in the neuroaxis. She developed a pseudomeningocele and cerebrospinal fluid leak, and underwent a dural repair one month after the initial operation.

Cyclophosphamide was begun at on June 21, 1995. One month later she was clearly worse. Neuroimaging studies showed enlargement of the tumor. The patient developed bilateral 6th and unilateral 7th cranial nerve palsies, and increasing irritability and weakness. A ventriculoperitoneal shunt was placed because MRI suggested an increase in intracranial pressure. There was minimal clinical improvement, then her condition worsened again. Steroids were administered but stridor ensued.

I saw the child in the intensive care unit. She had marked respiratory compromise, and I recommended elective intuba-

tion, and subsequent tracheotomy. I began radiotherapy at midnight on July 26, 1995. After three weeks of radiotherapy, she developed fixed pupils and bradycardia. Cranial CT showed that the tumor had enlarged into the pons. She was given twice daily irradiation.

After a total dose of 60.5 Gy, radiotherapy concluded on September 1, 1995. The child got no better. She died of progressive brain tumor five months after she first complained to her mother of nausea and four-and-a-half months after the initial operation. She had undergone three neurosurgical procedures, and endured high-dose cyclophosphamide therapy, intubation, mechanical ventilation, and radiotherapy.

Physicians use several defense mechanisms in dealing with adults with cancer. Faced with someone with advanced bronchogenic carcinoma physicians may say to themselves: "It's a terrible case. The prognosis is grim. But look at the patient's history of cigarette smoking." This rationalization somehow eases the pain the physician feels in the suffering of a fellow human. Or faced with a patient with advanced carcinoma of the cervix, physicians think: "Look at the behavioral risk factors and multiple infections that preceded the tumor."

When etiologic rationalization defenses don't work, the doctor may turn to the age defense: "The patient is 85 years old and no one lives forever." I appreciate that this rationalization won't work with 40-year-olds with widespread metastatic breast cancer, but it may help the physician get through the day.

Rationalization defenses based on age or etiology break down when we face a child with malignancy. We have nothing and no one to blame for Jennifer's glioblastoma multiforme and subsequent death. There is no rationalization.

The problem is not new. It is one which people have had to



deal with for centuries. Theologians call it *theodicy*—the problem of evil. You may frame the questions as follows: If the world has a rational order, if there is a sunrise and a sunset, if there is love and if the flowers bloom, then you cannot explain irrational death, the death of an innocent child. It doesn't make sense. I think what is deeply troubling to physicians about Jennifer is that her death implies that there is no rational order to the Universe. Popular books endeavor to comfort and explain why bad things happen to good people. Many authors on this subject can't resist pointing out that an entire book of the Bible, *Job*, addresses the topic.

To those who believe there is no formal order to the Universe, or to atheists who don't believe in any divine purpose, the problem of evil is easy to solve: Since there is no rational order to the Universe, since everything is random, then evil is just one more random event. One wag wrote that the fundamental problem for the theist is explaining the problem of evil. The atheist doesn't have to explain why there is evil in the world, but has a different problem: explaining everything else.

I am interested in the stresses that a case like Jennifer's places on physicians-in-training and medical students. How do these individuals come to grips with the problem? How, after seeing patients like Jennifer, do they get up and come to work the next day? How can older physicians help younger colleagues deal with this problem?

**Dr. Iley B. Browning, III, Assistant Professor,  
Pulmonary Division, Department of Pediatrics:**

I was involved in Jennifer's care. As she was nearing her death it was decided that she should go home to die. I helped arrange getting her home. It was a very difficult case and it brought a lot of questions to mind.

Death and dying in pediatrics can be difficult to discuss in a large group because it is ultimately a personal issue. One of the reasons that I was attracted to pediatrics was that death was not as routine as in internal medicine. Sick children who got better still have potential for a good life. I still believe that. I now temper my views, however, with reality and experience.

Children are not supposed to die. As caretakers we are conditioned to believe this to be true. We feel that death is a failure on our part. I would not begin to suggest that it is to be accepted easily, but unfortunately it is often the end result no matter what we do. The question that remains is how to deal with it.

My first experience in dealing with death was as a second-year resident. I was making rounds in the neonatal intensive care unit, evaluating a C-section baby that was billed as having transient tachypnea. He did not look good. We decided to complete his evaluation and start antibiotics. During the LP he arrested; we quickly intubated him and suctioned pus containing gram positive cocci from his airway. I spent the next 36 hours at his bedside. We did everything right but still he died at 5:36 in the morning. When I told his mother she asked to see him. I took him to her. She held him closely and told me how she and her husband had been trying for eight years to have a child.

Her uterus had ruptured during delivery and she underwent an emergency hysterectomy. This was no longer a kid with Group B strep—now he had a name and a story. He became personal.

I remind students and residents that patients on the floors are not your patients. They did not come here for you to take care of them. They are not, in reality, anyone's patients. They would rather be anywhere but where they are. They would prefer never to meet any physician except at a well-baby check to be given a clean bill of health.

I have seen individual residents and medical students praised highly as caretakers by parents who have lost children. What makes a difference is personal care. We sometimes forget that these are children, not representations of cystic fibrosis, glioblastoma multiforme, or congenital heart disease. If you remember this, people will respect you no matter where you stand in the chain of decision-making. They become your patients because they want your care and attention.

We must find a balance between the scientific requirements of treatment and the emotional needs of people. No one can love, or even like, every single patient. Still, we are required to provide care and support regardless of our personal feelings. The experience of learning to deal with difficult emotions must be an important lesson for us.

**Reverend Mitchell Simpson, Senior Minister,  
University Baptist Church, Chapel Hill:**

Several months ago I received a call from a nurse at Duke who works in Oncology. She is a friend and a member of our congregation. She called because she was overwhelmed at the frequent deaths of her patients. Today seems to me almost a continuation of that conversation.

We can rationalize a person 80 years old dying of cancer. I know because my father is 80 years old and is dying of cancer. But I have three young children, and they present an entirely different issue. For me, walking on an oncology ward is debilitating. I often find myself completely inept because of the theological silence that overwhelms me.

Silence may be the most truly faithful response. This holds true, at least in the Christian understanding that God is found not in the whirlwind, but in silence. When I visit with parents whose children are dying, here is how I make sense of it: In the most literal sense I don't make sense of it. Of course, I believe that all of us, as products of the universe, are blessed and cursed by a mentality that says that, to make sense of things, we must have answers. The Old Testament tells us that when Job cried out, "What does all of this mean?" God responded, "Where were you when I created the heaven and the earth?" I think this is a reminder that there are wisdoms beyond our wisdoms.

I tell parents and caregivers that the same God said, "Before I shaped you in your mother's womb, I knew you." If there is a God who knows us and calls us into being before we even hear our name, it is to that God that we return. We are never out of that God's care. But all of that seems to disappear when you are looking into the faces of parents whose hearts are breaking and whose lives seem to be ending because of a child's

death. I am sure that's also true for those of you who are there day in and day out.

We must help each other with an embrace, with a shared look that says, "There is a day that comes after this that is a better day." The further I go into this unknown territory, the deeper is my comfort and trust that a receiving love exists at the very moment of death.

**Rabbi Steven Sager, Rabbi,  
Beth El Synagogue, Durham:**

Much of Dr. Halperin's narration was foreign to me. Much of the language that I did know was used in ways that were exotic and strange to my ears. A language that I knew, yet did not know. Clearly, a coherent story was told here—a clinical story—concise, and precise. The clinical story unfolded according to the logic of symptoms, treatment, and outcomes.

I presume that the constellation of clinical factors suggested that Jennifer would die. The trajectory towards death was logical. We see its tracings in these slides, hear of its unfolding in Dr. Halperin's presentation. Jennifer's death was the logical outcome.

Yet, there is another logic, stubborn and entrenched, which has also been presented this morning, "Children should not die."

This is a logic of the spirit. This logic supports a different aspect of Jennifer's story: The story of a child and her family who live with growing incapacity, with anxiety and fear. Here is a little girl who cannot run with her friends, who cannot read easily anymore. She cannot get on the floor and pet the dog.

One logic contends with the other: "Why shouldn't this child die? Look at the clinical evidence. Death is the logical outcome." The other logic replies, "Nevertheless, children should not die." How can we help but have spiritual "dis-ease" when we presume to live in the world where both of these logics coexist?

Here is my proposition: The physician who is pounded by the spiritual disturbance occurring when one "front" of logic meets the other is in a very good place. The physician who does not suffer in that maelstrom is in jeopardy. This trauma, this bruise on the soul is what Thomas Moore (*Care of the Soul*) would call a "symptom of soul." It is a sign that in the deepest place of commitment, imagining, and hoping, the physician is unwilling to relinquish either one of these logics.

Nancy Mairs (*Plaintext*), a fine essayist who lives with multiple sclerosis writes that she has learned to have compassion upon her doctors who are sometimes dismayed by her very presence because she incarnates their limitations. She writes further (I paraphrase her) that while her disease does not diminish her, it does diminish her physicians. I suggest that we need to find a way to honor the limitations of the physician—those ever-shifting borders that technology, research, and the resulting clinical logic push outward. Our best efforts always leave us in the storm front of contending logics. For there, at the border of our technology, it will always be waiting for us: That other logic that tells us that "children should not die."

I don't presume to know how it is that physicians can join these two kinds of logic and at the same time separate them. Yet, I believe, that is the task. There must be the detachment of keen clinical judgment; there must be the logic of treatment and consequence. At the same time, there must be attachment—"children should not die." In English we have a verb, "to cleave," which is its own polar opposite, meaning both "to join" and "to separate." Perhaps physicians, in support of each other, need to wonder out loud as to how the higher or deeper intelligence of that verb can be mobilized in their service—two movements at the same time. The term "healing" itself means "to make whole." I suggest that healing for the physician takes place on many levels, not the least of which is the making whole, the integrating of these logics—clinical detachment, and also attachment. For the caring physician there is a price to pay for the "healing," for the "cleaving" in both its meanings.

**Rev. Travis:**

You have heard responses to this scenario of human life and death. What observations, testimonies, and questions does the audience have?

**Dr. Michael Frank, Professor and Chair,  
Department of Pediatrics:**

The job of a physician following the death of a child is to go to work the next morning and help the family. Major problems result when the physician avoids the family. It is a reflection of what Rabbi Sager said about multiple sclerosis. If there is nothing you can do for the patient, meaning there is no medication or treatment, we have a very strong tendency to avoid the patient and their family. We have to be aware of it.

**A member of the audience:**

In medical education, we convey the message that physicians are supposed to know all of the answers. No place along the line do we address when to say, "I don't know." There may not be an answer to a family's questions. I think that one of the fundamental aspects in chronic care involves saying, "I don't have an answer. We will make you comfortable and give you as good a quality of life as we can give."

**Rev. Simpson:**

This issue is very interesting. Look at the difference between the Greek and the Jewish way of making sense. To the Greek mind, the greatest sin was the lack of knowledge. To the Hebrew and subsequently Christian mind, sin was to be separated from God. The grand complexes of the medical centers have supplanted cathedrals. We go into places like this hospital to seek our answers. Many of you are the new caste of priests. You are the persons to whom people come for the answers. You are asked to be without blame, faultless, and have absolute answers. Part of your training is your classic rational education which does not give you permission not to know. That is the issue for many of you. You have to know you cannot know all the answers.



***A member of the audience:***

You constantly hear about genes being discovered and cures that are just around the corner. The public comes to the hospital feeling that we are performing an exact science. They expect to find answers, but we have chronic diseases because we don't have answers. Over time you establish a relationship that allows the patient to accept ambiguity. If you don't have a good relationship with a family it is very hard for them to accept ambiguity. They will look at you as if maybe there ought to be someone smarter around.

***Rabbi Sager:***

We are talking about two things. I hear the word "disease" a lot. There is a distinction between "disease" and "illness." Perhaps physicians choose the word "disease" carefully, perhaps not. Disease is only one piece of the issue. The other piece is illness. Disease is technical. What can be diagnosed is not always illness. Part of the difficulty that physicians feel, I suspect, is conflict about which one we are treating. We know we are treating the disease. Our approach to the illness, however, is difficult to tease out. Even when the disease can't be treated successfully, maybe we can deal with the illness, that state of being, that state of experiencing what the symptoms are, the disease as opposed to the illness. Maybe we can deal with the malaise felt by someone who is caught in the web, along with family, and the responding community.

***A member of the audience:***

First, I congratulate the department and organizers of this symposium. Over 18 years in two institutions in Boston, I never experienced any discussion that addressed these issues. I think it is quite wonderful.

We don't cure many diseases. What we do is teach people how to try to deal with them. I think that what people want, more than anything else, is a belief that they are not being acted upon without a response. A response may be difficult, it may be time-consuming, but it is often the one thing that patients have to hold on to. If you convey the message that you are going to go down fighting, then that can be a remarkable gift. We underestimate the power of the mind.

I want to take issue with the comment that "children don't die." I am a history buff. If you were to look at the obituary column of an early 20th- or late 19th-century newspaper, perhaps in New York City, you would be surprised at the number of obituaries for children under the ages of five or 10. The phenomenon that "children don't die" is relatively recent. When I became a resident at the Children's Hospital in Boston, one of the old buildings had a large storeroom containing all of the iron lungs used for polio in the 1940s and 1950s. We don't use these things anymore. Many fatal diseases are no longer fatal. Some that are not immediately fatal become long-term chronic diseases.

There are many things that are worse than death. One of the supreme services that we physicians can give to our patients, and to their families and ourselves, is the realization that we can

help people through the dying and the grieving process. When I first started in this business, I never used to go to patients' funerals or see the families after a patient died. I felt that this was something that I could not deal with. I gradually realized that going was good for the families and also good for me. It allowed me to continue with my grieving process over the loss of a child.

***Dr. Deborah Kredich, Professor,  
Department of Pediatrics:***

One of the most powerful experiences I ever had was in caring for a girl from the time she was five until her death at 14. Two days before she died she said to me, "Are you going to be mad if I give up now?" Not only do we have to fight the good fight, but we have to know when the fight is over. We must help people to understand that they are not disappointing us.

***A member of the audience:***

I often say to medical students, on the first or second day of their rotation, "I hope nobody dies during these eight weeks, but if someone does I hope you have the privilege of working with them. I hope everyone can experience it".

***A member of the audience:***

Americans are so insular. Outside this country children die every day.

***A fellow in pediatric hematology:***

During my residency I had an exceptional mentor who was our director of critical care. We were all to spend one night with a dying child, and come to terms with the encounter. He used to tell us, "Enter into a child's life and realize that you are in a holy place." To give of yourself, that's the difficult part. He also said, "As a physician my goal is to cure, my passion is to care."

***Rev. Travis:***

Let me share something with you. A few years ago I read an article by a professor who lost his wife, four-year-old child, and mother in an automobile accident. As he reflected on this catastrophe, he talked about the difference between a life of grace and a life of fairness. When I first read this, it sort of slapped me in the face. I pondered on it so I will leave this thought with you: God spares us a life of fairness to live in a world of grace. A fair world might make life nice for us, but only as nice as we are. We might get what we deserve. I wonder how much we deserve and whether or not we would really be satisfied. A world with grace will give us more than we deserve. It will give us life even in our suffering. I think that is exactly what we've been talking about. □

***Editor's note:*** We encourage *Journal* readers to comment on this topic. We welcome comments as e-mail: [yohn0001@mc.duke.edu](mailto:yohn0001@mc.duke.edu), or write: *North Carolina Medical Journal*, Box 3910 DUMC, Durham, NC 27710.

# How to Open a Free Medical Clinic

Hans C. Hansen, MD

It was a miserable day that I first drove down to the south side of Statesville in search of Fifth Street Ministries. I had heard much about the agency, but I could not, for the life of me, find the street for which it is named. Couldn't, that is, until I was stopped at a police road block and put into the awkward position of asking for directions at the same time that I was explaining why my driver's license was in my other car. The officer appeared not to understand why anyone would purposely be driving that way. I explained that I was 20 minutes late for a meeting with the directors of the homeless shelter—Gary West, Patti West, and Neil Furr—to discuss opening a free medical clinic. The officer's reaction was one of disbelief—and not the last I was to see during our efforts to open the door to people needing free medical service.

Some people feel that the door is too heavy to budge. Many of those of us who launched a practice after residency had high hopes for our clinics, hopes that could not be fully realized when financial reality set in. Opening a clinic is expensive! Personal resources and financial encumbrances rarely let us build the dream practice that we would like. Remembering those personal experiences, hearing the tales of colleagues, listening to the warnings of friends would make anyone feel that the financing and development of a free clinic is a job for the government. The expenditure of time, as well as money, is daunting. When a physician's precious minutes are calculated into the demanding commitment of designing, organizing, staffing, and building a medical clinic, the task sometimes seems overwhelming.

Still, it is manageable; the door to free medical care swings open fairly easily when the right touch and the right steps are used. What follows is a story of one physician's attempts to assess and then respond to a community's need for free medical care. By no means did I do this alone. As with any medical practice, it took the efforts of a lot of people to open the door to

the Open Door Clinic. To quote my father: "You are only as successful as the people around you."

During the first meeting at Fifth Street Ministries, Patti, Gary, Neil, and I began to put our thoughts on paper. We developed an action plan, a step-wise approach to introducing the idea of a staffed, permanent medical facility to the community. As a result, a clinic was designed, ground broken, a ribbon cut, the doors of a new facility swung open to the community, and many months of primary health care have been provided, all in the remarkably short period of two and a half years.

## Assessing the Need: The First Step

My first conversation with the shelter directors revealed that people living at the shelter and in nearby south Statesville had limited access to medical care. Dr. West pointed out that not a single medical doctor or dentist practiced south or east of East Broad Street, which cuts through the middle of our city. The nearest primary health care for shelter guests, indigent persons, and the working poor in the area was three miles or more away in the emergency room of Iredell Memorial Hospital. Preventive care was even farther away at the Iredell County Health Department. Cab fares to the two sites were \$12 and \$20, respectively—beyond the reach of most people. We felt that primary medical care would have to come the other way—to the people in the south side and to the shelter itself.

## Room Available: The Shelter Site

The abandoned Avery Sherrill School (now the home of Fifth Street Shelter Ministries) occupies four acres of land surrounded by the crowded neighborhoods of south Statesville. Approximately 6,000 of Statesville's 23,800 residents live in the area. It needed renovation and painting, but it had the advantage of extra rooms and bathrooms, and a location within walking distance for most south side residents. We picked one of the downstairs classrooms that had two bathrooms right across the hall and a large hallway to serve as a waiting area, put

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out flyers, ran a news article or two, and began to see patients once a week.

Since we operated on an "open door" concept, every patient who came to the clinic was treated, irrespective of financial status. With an eye to the future, we kept appropriate demographics that could be used in soliciting grants and other funds. As word of the free clinic filtered through the community, the United Way's Information and Referral Service and other agencies joined us. After about a year of scrounging through plastic bags of donated medication samples, standing on a chair to operate the cellular phone, freezing or sweltering, seeing 20 to 30 patients at each clinic, we had a good idea of what was needed to design, build, and staff a free medical clinic. We also had a corps of community volunteers capable of building a freestanding clinic. We were ready to move to the next major steps.

### **The Field of Dreams Concept: Build It and They Will Come**

It is said of marriage that after the first year everything seems to improve. So, too, with the free clinic. After a year in the basement of the old Avery Sherrill School, the clinic was an accepted part of the community. That acceptance, accomplished through neighborhood contacts with patients and through a shelter newsletter for the greater community, through community education presentations, encounters with local media, and the efforts of key individuals, led to a \$52,000 grant from the Kate B. Reynolds Foundation to actually build a facility. Joanne Findt of the United Way Information and Referral Office, assisted by Neil Furr of Fifth Street Ministries, wrote the grant. A key to our successful application was a visit to Kate B. Reynolds officials that gave Joanne, Neil, and Cathy Hansen, RN, valuable insight as to how the grant should be presented and what was eligible for funding.

Shortly after the grant was awarded, the Fifth Street Board of Directors appointed a Steering Committee comprised of prominent members of the community and the clinic's founders. These persons were charged with planning and then building a facility. The Open Door Clinic Steering Committee sponsored a fundraising event that was featured prominently in the local newspaper, the *Statesville Record & Landmark*. In the year following that successful event, Wayne Rogers and Gerald Grant oversaw construction of a 1,250-square-foot clinic building by volunteer plumbers, carpenters, roofers, sheet-rockers, electricians, and contractors.

In December 1995, after two years in the depths of an 80-year-old school building, we moved into our new facility. I can only liken what happened next to *The Field of Dreams*: we built it; they came! Medical professionals and volunteers have been coming in abundance since. Because of the growing body of volunteers, and because of the interest of public health agencies in extending services to Statesville's south side, the clinic has

expanded to accommodate the Health Department's adult health services, community-based health screenings sponsored by Iredell Memorial Hospital Nursing Services, and Tuesday and Thursday night general medical clinics. A planned dental wing has aroused the interest of the dental community. Other plans include specialty clinics that will begin soon, the installation of x-ray equipment (now being tested for use), and a laboratory. The clinic has become a true community effort.

### **A Model of Replication**

The success of the Open Door Clinic in Iredell County demonstrates that such a project could be accomplished in any community if these guidelines are followed:

During the early phases of development, the complete dedication of a few core individuals is necessary. The primitive conditions of a free medical clinic are trying at first. In spite of hardships, the core medical staff must persevere and provide continuity of follow-up on patient needs. One hint: Hardships are lessened if a clerical assistant can be wooed to spare physicians and staff some of the drudgeries of paperwork.

The medical community should be involved early on. Primary care physicians, hospitals, and specialty providers should be courted, educated about the problem, and invited to participate. Not only can they provide valuable clinic time but they also can offer referral visits in their offices. As an anesthesiologist, I found myself uneasy in some clinical situations even though I have had a year of internal medicine training. That makes a broad-based medical support and referral network important. The terrific support we received early on from physicians at the Statesville Medical Group (now Piedmont HealthCare) and Columbia Davis Medical Center helped greatly during the clinic's early stages.

Medical and professional help is essential, but community lay volunteers are just as crucial to a clinic's success. Involvement of volunteers through the local United Way, the volunteer builders and contractors associated with Habitat for Humanity, many local churches, Mitchell Community College Nursing Program, and local civic groups such as the Rotary Club provided us with resource and support centers as well as energetic volunteers. And it turned out that our United Way volunteers were superb at grant-writing. That helped minimize the clinic's personal financial impact, although you must still expect out-of-pocket expense that will not be reimbursed.

As a means of drumming up volunteer and financial support, I cannot overstate the value of attracting the local media to your cause. Our own local newspaper played an absolutely critical role in alerting the community to the problems of the medically underserved, identifying the opportunities the clinic offered to work on those problems, and keeping people aware of the clinic's successes. In addition to attracting volunteers and donations, newspaper articles attracted vendors, including drug companies, hardware providers, and cleaning supply companies, to our needs. They played an essential part

in equipping the clinic and its pharmacy (our x-ray machine, for instance, was donated by C. T. Harris Co.). In addition, Iredell Memorial and Columbia Davis Hospitals helped with our laboratory and other needs. All we had to do was provide them from time to time with "wish lists." I should add that our newspaper articles stressed the cost savings afforded by using the free clinic for the primary care of indigent patients rather than hospital emergency rooms.

While busy drumming up community support and donations, do not forget to address staff issues. From the beginning, take care that the roles and responsibilities of caregivers and ancillary staff are defined as soon and as clearly as possible. It helps to appoint a policies and procedures subcommittee to assure the clarity of roles and responsibilities. A quality assurance committee should demonstrate a commitment to a high standard of care.

That high standard of care requires a pharmacy, which means, of course, that a pharmacist must be found and involved in the proper dispensing of medicines. For example, the Open Door Clinic dispenses antibiotics and other urgently needed medicines. We have found that some physicians refer patients simply to have their prescriptions filled by us. We have had to reject this practice since it would, of course, quickly exhaust our pharmacy budget. With the help of our pharmacist we have created a pharmacy formulary that enables us to provide low-cost alternatives to expensive medicines. Currently our pharmacist is helping us to develop policies governing the dispensing of medicines.

## Anticipating Growth: Expanding the Vision

Specialty clinics should be a part of future growth since not all health needs and concerns can be accommodated at a clinic's outset. It is virtually certain that the health professionals working in the clinic will encounter serious health needs that are going unmet. For example, we found that nearly 10% of patients seen in the clinic had dental problems serious enough to affect overall health. After broadcasting the need for a dental wing at the clinic, we received money to proceed from the Lillie Norket Charitable Trust and the Sisters of Mercy NC Foundation, Inc. Our meetings with dentists and hygienists lead us to believe the new wing can be as well staffed as the medical clinic. The need for dental care cannot be stressed enough. If you cannot have a dental clinic, at least have plenty of penicillin available for those abscessed teeth, and a core group of dentists willing to accept referrals.

The vision of one of our supporting hospital administrators, Arnold Nunnery of Iredell Memorial Hospital, resulted in the addition of a daily nurse's clinic to our menu. Two nurses, at no expense to the Open Door Clinic, assist patients in monitoring blood sugar and blood pressure levels, in ensuring that medications are being taken properly, and in checking surgical dressings. The vision of health department specialists led to a satellite adult health clinic held every Tuesday after-

noon. Naturally, any clinic designed to accommodate such opportunities lets visionaries dream.

The selection of a capable Board of Directors is a critical element. Chosen wisely, these individuals can find resources, assist with planning, lend credibility to the clinic's efforts, and be visionaries in their own right. As important as vision is practicality and consistency. A well-chosen, carefully budgeted clinic coordinator can keep the clinic moving forward steadily and smoothly by overseeing the clinic's daily operations. He or she can also ensure that the directives of the board and the medical director are implemented.

## You Gotta Love It

Above everything—above all the planning, all the careful selecting of people to help, all the worrisome fundraising—remember that this is a labor of love. Work in the Open Door Clinic provides a needed and refreshing break for many of our community practitioners. It is a godsend to many of the underprivileged and working poor. The helpers and the helped agree, this is feel-good medicine. □

**Acknowledgment:** The author greatly appreciates the assistance of Neil Furr, BA, Administrative Director of Fifth Street Ministries, for his help in writing this article.

# partnerships!



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# The Health and Health Care Utilization of People in Buncombe County

Suzanne E. Landis, MD, MPH, and Cynthia L. Janes, PhD

The people of Buncombe County, North Carolina, have pressing unmet health needs.<sup>1</sup> In this paper we give a progress report on ongoing assessment of those needs and the creative solutions being devised by our private physicians in concert with the community.<sup>1</sup>

Our community health assessment process consisted of six phases:<sup>2</sup>

**1. Internal and external assessment.** We evaluated current efforts related to health care delivery for the underserved, and the willingness and readiness of major organizations to sponsor health care delivery in the county.

**2. Building partnerships; tailoring the process.** We formed *Health Partners* to enhance interaction and communication between groups that deliver health care, community representatives from underserved populations, health and human service organizations, business leaders, legislators, and county commissioners. *Health Partners* is a community-based, community-led volunteer coalition open to everyone interested in improving the health of Buncombe County residents. We developed priorities regarding appropriate access to health care and related services, particularly for those with low income and no medical insurance. Resources to help in planning were provided by the Mission/St. Joseph's Hospital System, Thoms Rehabilitation Hospital, and the Robert Wood Johnson Foundation.

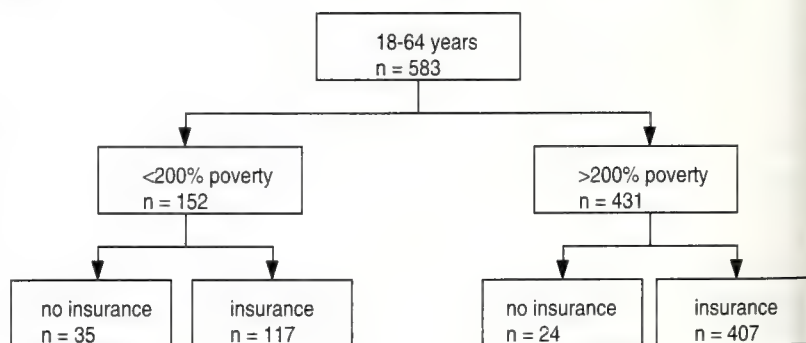
**3. Data collection.** To get information about health behaviors, functional status, health care utilization, and access/barriers to health care, we used focus group meetings of representatives of vulnerable populations and health care providers, town meetings held in medically under-

served sections of the county, and a random-digit phone survey of county residents.<sup>3,4</sup>

**4. Data synthesis and summary.** To test the significance of associations of income and health insurance with health care system use and health behaviors, we used the  $\chi^2$  test of association except for age, where we used the one-way analysis of variance (ANOVA). Alpha was set at .05.

**Telephone survey data.** Professional Research Consultants of Omaha, Nebraska, contacted 794 adults (in as many households) out of approximately 170,000 residents of Buncombe County. Complete age, income, and medical insurance data were available on 692, 583 of whom were less than 65 years of age and 109, 65 years of age or older (Figure 1, below). The annual income of 52% of the elder subjects was less than or equal to 200% of federal poverty level, while that of 48% was more than 200% of federal poverty level.

In the remainder of our discussion we look at the 583 subjects aged 18 to 64 years. In this group, the annual income of 152 households (26%) was less than 200% of federal poverty level, and that of 431 (74%) was above. Whether households had access to health insurance was related to income level



**Fig 1:** Buncombe County survey data; n = households with age, insurance, and income data.

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(Figure 1, preceding page). Only 117 (77%) of the 152 families with incomes less than 200% of the federal poverty level had medical insurance, but 407 of the 431 (94%) with higher income had insurance. By extrapolation from these data, we estimate that 3,700 households in Buncombe County are both uninsured and have low income. Since each household has an average of 3.3 people, this means that more than 12,000 people are uninsured and have access to a household income of less than twice the federal poverty level. This is undoubtedly an underestimate since 6% of households have no telephone, and could not participate in our survey; most of these are likely to be low income.

Sociodemographic characteristics of our respondents aged 18-64 show that those classified as uninsured/low income are younger, less educated, less likely to be married, and less likely to be employed than people with insurance or higher income

(Table 1). People with low income and/or no insurance were more likely to say they had fair or poor health and more likely to say they were depressed (Table 2). Sixty-five percent of uninsured/low income respondents had been without medical insurance for more than two years. Those with low income and/or no insurance were less likely to have a designated place where they received health care, less likely to have had a health check in the past year, and less likely to have had blood cholesterol measurement. They were likely to use an emergency room rather than a physician's office because of cost.

In regard to health behaviors, those with low income and/or no insurance were more likely to use whole milk (a marker for dietary fat intake), to be currently smoking, and to be sedentary (Table 2, next page).

*Group input. Health Partners* convened 13 focus groups to

**Table 1. Sociodemographic characteristics of Buncombe County respondents aged 18-64 years**

	<u>Income &gt;200% of poverty</u>		<u>Income ≤200% of poverty</u>	
	<u>Insurance</u> (n=407)	<u>No insurance</u> (n=24)	<u>Insurance</u> (n=117)	<u>No insurance</u> (n=35)
<b>Average age*</b>	42.3 yrs	35.5 yrs	41.5 yrs	35.9 yrs
<b>Male</b>	48%	58%	42%	54%
<b>White</b>	97%	96%	86%	94%
<b>Black</b>	2%	4%	11%	3%
<b>Other</b>	1%	0%	3%	3%
<b>Education*</b>				
High school or less	31%	42%	58%	63%
Some college or more	69%	58%	42%	37%
<b>Marital status</b>				
Married*	72%	42%	54%	43%
Divorced/widowed	12%	21%	23%	26%
Separated	2%	4%	5%	6%
Never married	11%	25%	14%	15%
In committed relationship	3%	8%	5%	11%
<b>Employment</b>				
Working*	84%	79%	65%	54%
Out of work	3%	13%	15%	30%
Not working (e.g., students, housewives, retirees)	13%	8%	20%	16%
<b>Household income</b>				
Median	≈\$48,000	≈\$48,000	≈\$19,000	≈\$12,200
Range	\$14,200- >\$75,000	\$21,500- >\$75,000	<\$7,000- \$35,999	<\$7,000- \$35,999
% below poverty	-	-	18%	49%
100% - 150% poverty	-	-	28%	29%
>150% - 200% poverty	-	-	53%	23%
>200% - \$59,999	58%	79%	-	-
\$60,000 - \$74,999	26%	17%	-	-
≥\$75,000	16%	4%	-	-

\*Significant (p<.05) association between this variable and income/insurance status



**Table 2. Percentage of Buncombe County respondents aged 18 - 64 years endorsing selected measures of health status and care utilization**

	<u>Income &gt;200% of poverty</u>		<u>Income ≤200% of poverty</u>	
	<u>Insurance</u> (n=407)	<u>No insurance</u> (n=24)	<u>Insurance</u> (n=117)	<u>No insurance</u> (n=35)
<b>Functional status</b>				
Fair/poor health*	6%	8%	24%	17%
Excellent health*	34%	25%	16%	17%
Depressed in past year*	18%	44%	30%	40%
Work limited by health	7%	0%	6%	14%
<b>Health care system use</b>				
Have health care provider*	79%	48%	77%	57%
Did not see doctor last year because of cost*	7%	29%	22%	51%
Had checkup in past year*	67%	33%	66%	42%
Used ER in past year*	12%	25%	24%	28%
Ever had cholesterol check*	84%	52%	73%	39%
Mammogram in past 2 yrs.* (n=86) <sup>a</sup>	87%	- (n=1)	80%	- (n=2)
Pap in past 2 years (n=303) <sup>b</sup>	85%	100%	81%	81%
<b>Health behaviors</b>				
Use whole milk*	21%	43%	43%	66%
Overweight	24%	4%	32%	21%
Sedentary*	57%	65%	73%	73%
Current smoker*	22%	46%	37%	49%
Chronic drinker	4%	12%	3%	11%
Binge drinker	13%	21%	10%	24%

\*Significant ( $p < .05$ ) association between this variable and income/insurance status

<sup>a</sup>women ≥ 50 yrs. <sup>b</sup>all women

identify major barriers to care. We sought input from each of seven community groups that often lack ready access to medical care: the elderly, HIV-infected, homeless, gay and lesbian, African-American men, working uninsured, and Hispanic people. Six focus groups (two for physicians and four for other health and social service providers) sought providers' perspectives. Four community forums were held in medically underserved areas, three in Asheville and one in a rural area of the county.

The focus groups and community forums identified lack of money as the primary barrier to health care, especially for people who lacked insurance or had no disposable income to pay medical bills. Other identified barriers included an insufficient number of primary care physicians, long waiting periods for appointments, and inflexible and inconvenient office hours. Transportation was a barrier to care for some since 7% of respondents did not have a car and the public transportation system operates only until 6:30 pm and within the City of Asheville.

Focus group participants said provider discrimination was a problem. Medicaid and Medicare payments are not universally accepted by primary care or specialty physicians, and both overt and subtle racism and homophobia are problems. A small portion of our residents speak Spanish, but they feel that the language barrier hinders their receiving health care.

**5. Setting priorities and planning action.** At a morning-long retreat in February 1996, more than 50 members of the *Health Partners* coalition met to review the community needs assessment data and prioritize health objectives. We identified priorities by: 1) Importance—does the problem have serious consequences? 2) Tractability—will a change make a difference and consume resources efficiently? Extremely important and highly tractable problems received the highest scores, and the top two choices were: 1) financial constraints on accessing health care, and 2) a need for better preventive health services. Task forces were formed to address these areas, to review additional information, set specific health objectives, and develop action plans.

**6. Action and evaluation.** *Health Partners'* program consists of the following: 1) To continue to obtain input from health and human services agencies, community residents, politicians, and businesses regarding identification and prioritization of problems, and to collaborate on solutions. 2) Neighborhood clinics have been and are being developed to provide primary care, preventive care, and case management services. They are staffed by mid-level providers and health educators/social workers, overseen by physicians. 3) Physician members of the Buncombe County Medical Society have organized *Project Access* to match needy patients with free physician, hospital, x-ray, laboratory, and pharmacy services. Physicians' services

are provided at the Asheville-Buncombe Community Christian Ministry (ABCCM) Doctors' Medical Clinic, at private offices, at the Buncombe County Health Department, or at other sites such as a housing community. During the first year more than 70% of county physicians participated, either by seeing patients in their offices or volunteering at the ABCCM Doctors' Medical Clinic or both.

The Prevention task force has promoted the use of lay health advisors to enhance use of preventive services by vulnerable populations. We are currently developing a program to identify, train, and support lay health advisors at certain churches and health care organizations in the county.

The Buncombe County community already has been affected positively by this project. Health care providers and community members are working together toward a common goal of improved access for the underserved. We have identified and brought together into a single network individuals who are bound by a common commitment to this goal. In addition, the working together has brought understanding and trust to diverse parts of the community. This will pay further dividends by enabling collaboration on health issues and other matters of concern over the long term. □

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# “Boldly They Rode...Into the Mouth of Hell” Pennyroyal Oil Toxicity

Ronald B. Mack, MD

In the panorama of world events, the Crimean War of 1853-1856<sup>1</sup> was not of great moment—unless you were a participant, of course. One of the more famous (or infamous) engagements of this conflict was the Battle of Balaklava in 1854, which prompted Alfred Lord Tennyson to write his wonderful ballad, “The Charge of the Light Brigade.”<sup>2</sup> The battle pitted the British and French against Tsarist Russia. The Russians wanted to expand their territorial dominion into the Balkans (but then, they have always coveted the Balkans and still do). Russian expansion would have compromised the Ottoman Empire, and the British needed the Ottoman Empire intact because of their interests in the Mediterranean and Asia, and the French wanted to protect Roman Catholic interests in Turkish-controlled Palestine. The Russians lost the war and abandoned their claims.

For our purposes, several interesting events came out this war: It introduced women into the important role of army nurses under the expert guidance of Florence Nightingale.<sup>3</sup> Even with Miss Nightingale, far more soldiers died from disease than from battle wounds. It was probably the first war in which the newly discovered telegraph was used, primarily to influence government policy-making and for aiding press coverage. And finally, of course, it prompted the poem by Tennyson. Tennyson gives a true rendering of the charge made by 673 British light cavalrymen against massed Russian artillery. The British horsemen suffered tremendous losses because of their inept leadership, but “Theirs not to reason why/Theirs but to do and die.”

## Pennyroyal

The lesson we need to learn from the Charge is that when, as adults, we *have* choices, we should avoid making stupid and dangerous ones. The last annual report of the American Association of Poison Control Centers notes that there were 2,023,089 human poison exposures in a population of 218.5 million people; 53% of the reported exposures were in children younger than six years.<sup>3</sup> Fortunately, there were only 20 deaths (I say *only* not to be insensitive, but to make the point that 20 is a small number out of over two million exposures).

Dr. Mack is Professor of Pediatrics, Wake Forest Univ. School of Medicine, and a member of the *Journal's* Editorial Board.

One of the 20 deaths came after ingesting pennyroyal oil tea.<sup>3</sup> The victim was 12 weeks old. He allegedly had a mild upper respiratory infection for which his caretakers (however misguided) gave him acetaminophen (probably not necessary unless his rectal temperature was over 102°), a brompheniramine/phenylpropanolamine cold remedy (a no-no in pediatrics) and four ounces of “tea” made from leaves of a plant growing in an aunt’s yard. Shortly thereafter he died from fulminating liver failure, metabolic acidosis, and renal dysfunction. A liver transplant was considered, but the child died before it could be accomplished. A blood sample taken before death was positive for pulegone but more about this toxin later. This child had ridden “Into the jaws of Death/Into the mouth of Hell.”

Pennyroyal is an old remedy and an old nemesis; it is a perennial wild or garden plant, an herb of the mint family, Labiatae.<sup>4</sup> Since ancient times it has been reputed to ward off fleas; it was a traditional stewing herb of medieval castles. It is found in North America, Great Britain, France, and Germany. Pennyroyal oil, a volatile oil related to turpentine is derived from the leaves and flowering tops of the plant. It has a distinct mint-like odor and contains 80%-92% of the cyclo-hexanone, *pulegone*. This later chemical apparently protects the plant from predators (its name derives from the Latin word for flea). In Ancient Rome at the time of Pliny the Elder (230-279 AD)<sup>7</sup> pennyroyal was used as an abortifacient. That remains one of its main uses, as it has for centuries.<sup>5</sup> No question, it does cause uterine contraction but the action is unpredictable and potentially lethal. It is, as we speak, available in “health food” stores.

## Getting Sick From Pennyroyal

The metabolism of pennyroyal oil is both fascinating and informative and provides clues about adverse effects and potential therapy. Believe it or not, its metabolism is similar to that of acetaminophen. More than 90% of an ingested dose of acetaminophen is conjugated to glucuronide or sulfate; about 4% is metabolized by a cytochrome P450-dependent, mixed-function oxidase to produce a reactive, arylating toxic metabolite known as N-acetyl-p-benzoquinone (NAPQI). NAPQI is rendered harmless by being joined to glutathione from the liver and excreted in the urine. When doses of acetaminophen are exces-

sive, the glutathione system is overwhelmed and toxic amounts of NAPQI are available to attack liver cells where it causes acute centrilobular hepatic necrosis (and possibly a visit to the Hale-Bopp comet). The antidote for acetaminophen overdose is N-acetylcysteine, which helps to restore enzyme function and helps to detoxify, either directly or indirectly, reactive metabolites by facilitating glutathione synthesis.

The major component of pennyroyal oil, pulegone, is metabolized by the cytochrome P450 enzyme system to form a hepatotoxic metabolite, *methofuran*.<sup>4,6</sup> Pulegone and methofuran can deplete hepatic glutathione, leading to hepatotoxicity. Pulegone (or a metabolite) also produces neurotoxicity (seen in some pennyroyal victims) and destroys bronchiolar epithelial cells.<sup>6,8</sup> Remember the method of metabolism because it will point to the right treatment (if you have not guessed it already).

Primary toxic effects of ingesting pennyroyal oil involve the liver, kidney, central nervous system, and blood. Shock and disseminated intravascular coagulation can occur.<sup>9</sup> The central nervous system adversities include confusion, delirium, restlessness, dizziness, and seizures, as well as alternating periods of lethargy and agitation. It should be no surprise that nausea, vomiting, and abdominal pain are relatively common following ingestion, but hepatotoxicity, hepatic failure, and renal failure are the dreaded consequences of a pennyroyal oil exposure. Abortion may occur after severe poisoning, either accidentally or on purpose. Death, the ultimate evil sequela, can occur.

As a frame of reference regarding toxic doses of pennyroyal oil, as little as one tablespoon can cause death.<sup>9</sup> Other toxic effects, including convulsions, have been reported after ingestion of less than a teaspoon. Since it requires 50 to 100 grams of leaves to produce 1 mL of oil,<sup>9</sup> a teaspoon may be equivalent to a half a kilogram of leaves. It probably is of some importance to mention here that pennyroyal oil can be derived from *Mentha pulegium* or *Hedeoma* species. These plants are commonly called mosquito plant and squaw mint; they grow from Canada to Florida. Another source is commercial herbal tea such as broncodin tea which contains pulegone. This latter remedy has been used to treat upper respiratory tract infection and otitis media. (Please O, Lord, protect us from our protectors!)

There are many case reports concerning pennyroyal oil toxicity, including one 1996 paper describing four cases, one of whom died.<sup>5</sup> Three of the four patients were young women who consumed pennyroyal in the hope that the concoction would induce menses; one of them died. The fourth patient was an

infant of 22 months who ingested pennyroyal oil, amount unknown, was treated and survived. The authors reviewed 18 previous cases and deduced that moderate to severe toxicity occurred after ingestion of at least two teaspoons of pennyroyal oil. It seems that all readers of this piece should be aware that recent analytic techniques are available to measure pennyroyal metabolite levels. Thus, it is possible to identify and quantify blood levels of pulegone and methofuran.

## Treating Pennyroyal Toxicity

One of the more exciting aspects of dealing with this ancient enemy is current treatment, which focuses on aggressive supportive care as well as monitoring hepatic, renal, or hematopoietic abnormalities. If seen early enough after ingestion, the patient should be given one dose of activated charcoal and one dose of sorbitol cathartic. It is not a prudent endeavor to induce emesis because of the risk of aspirating the pennyroyal oil and causing rapid CNS depression. In an effort to stave off liver failure, strong consideration should be given to the administration of n-acetylcysteine, as is done in treatment of acetaminophen overdose.<sup>5,10</sup> There is little risk of toxicity from n-acetylcysteine and the potential benefit is high, so I would not hesitate to use it. It's probably best to begin treatment during the first few hours after ingestion.

## A Penny(royal) for Your Thoughts

Pardon me for not accepting most forms of "alternative medicine." I have enough trouble treating patients with medicines and procedures based on the scientific method. I embrace the thinking of Aristotle, Paracelsus, Osler, Koch, Pasteur, Salk, and other personal heroes, but I cannot feel the same about Drs. Andrew Weil, Deepak Chopra, Bernie Siegel, etc. It must be difficult and discouraging for patients who cannot get what they perceive as adequate relief from their ailments. The Light Brigade must have felt that way (as Tennyson noted, "Cannon to the right of them/ Cannon to the left of them/ Cannon in front of them/Volley'd and thunder'd"). Many patients feel "Theirs not to make reply/ Theirs not to reason why/ Theirs but to do and die." I say to them discuss your anxieties with your doctor, but if you do not get relief, do not get an alternative medicine like pennyroyal oil—get a second opinion! This way you can "Come thro' the jaws of Death/Back from the mouth of Hell."<sup>2</sup> □

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# Automobile Hood Ornament as Penetrating Missile

Lawrence S. Harris, MD

Neurosurgeons often must remove metallic objects from the cranium. Most often these objects are bullets, fragments of bullets, or lead pellets from firearms. I report a recent instance in which a metal fragment lodged in cranial bone proved to be part of an automobile hood ornament.

## The Case

Two cars collided on a rain-slick rural road on an afternoon in August. The smaller and older car, a Ford Pinto, was struck on the passenger-side door by the front of a late-model Cadillac traveling at an estimated speed of 45-50 mph. The tires on the Pinto had been worn smooth; the driver lost control on a gradual curve and swerved into the path of the Cadillac. The two young men in the Pinto were using three-point seat belts which remained intact. Despite this, the passenger was dead within minutes due to injuries involving head, neck, and thorax. The driver sustained a major head injury, detailed below.

The two occupants of the Cadillac, also using seat belts, sustained no significant injury. The driver's air bag deployed without complication.

Rescue personnel arrived within 15 minutes and determined that the driver of the smaller car had sustained a penetrating head injury. There was copious blood flow from a gaping wound in the right lateral forehead. A compressive bandage controlled the external bleeding. There were no other evident injuries.

In hospital three hours later, a computed tomogram revealed a metallic object embedded in the right frontal bone and penetrating into the right frontal fossa (Figure 1, at right). During debridement of the injury, the neurosurgeon described "an S-shaped wound" through the frontal scalp. Partial frontal lobectomy was necessitated by extensive hemorrhage, necrosis, and edema of cerebral tissues. After surgery, the driver required several weeks of physical therapy to recover his motor skills. He was discharged to a limited-care facility for additional rehabilitation.

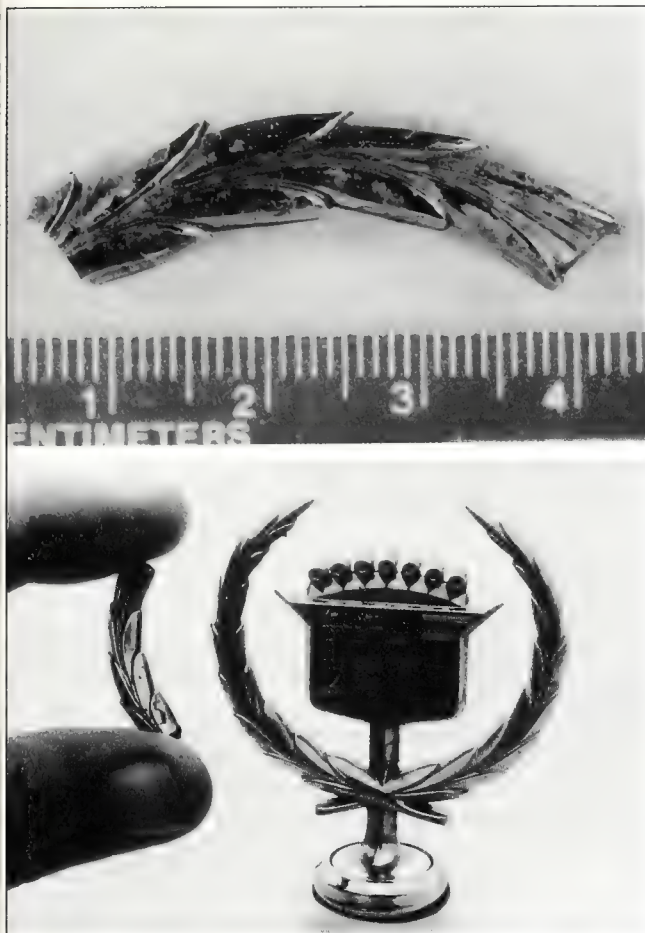
The surgeon removed the imbedded metallic object (Figure 2, next page: top). It was readily recognized as an arc of the "Olympic wreath" that outlines the Cadillac emblem in the hood ornament of recent models of that automobile. I was able to match it with an intact example found in the hospital parking lot (Figure 2, next page: bottom).

Within a week of the crash, I visited the salvage yard where the damaged Cadillac was stored. The front of the hood was severely deformed and the entire hood ornament was absent, having broken off at hood level. The stump of the spring-loaded mounting mechanism remained in the hood cavity, its spring



**Fig 1:** CT scan image of cranium showing a metallic foreign body embedded in the right frontal bone.

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**Fig 2:** Top—the metal fragment removed by the neurosurgeon. Bottom—the fragment compared with an intact hood ornament on a late-model Cadillac.

still under tension. I examined the wrecked Pinto and found the center of impact at the level of the passenger door handle, about 46 cm (18 inches) in front of the handle and about 30 cm (12 inches) in front of the passenger at the moment of impact. It was clear that the passenger door window had been rolled down and open at the time of impact. The degree of inward deformation of the passenger door did not suggest that the leading edge of the Cadillac hood had protruded into the driver's side of the car.

Visiting the crash site 10 days after the event, I found a number of small metal and plastic fragments in the dusty soil at the side of the road. Among the broken pieces of grille and battery bracket material, I found a Cadillac escutcheon (Figure 3, above right), but no other portions of hood ornament at the scene or in the interior of the Pinto.

I believe that two events took place during the crash event: 1) the impact initially caused the hood ornament to be snapped off at hood level; and 2) a portion of the ornament became an airborne missile, traveling across the passenger compartment (in front of the belted passenger) to lodge in the head of the driver. Its energy was derived from the residual kinetic energy



**Fig 3:** Debris recovered from crash scene: metal and plastic fragments from radiator grille and battery brackets and the central escutcheon of a Cadillac hood ornament (at arrow).

of the of the impacting vehicle and was apparently sufficient to propel the small metallic fragment through the frontal bone of a 27-year-old man. It seems likely that the spring-mounting of the ornament permitted extreme forward excursion during deceleration so that the stem snapped and the component parts fragmented. Whether a rigid hood ornament of similar design would have behaved in a similar fashion is not known.

## Discussion

Even in the 1960s, traffic safety researchers were concerned about hood ornaments on the "leading edges" of motor vehicles. From after World War II into the late 1960s, many US manufacturers displayed decorative and symbolic decorations on the hoods and fenders of their products: a chrome ram on the Dodge, a ship in full sail on the Plymouth, a shiny, pointed rocket on some models of Chevrolet and Oldsmobile, etc. In 1968, Gikas and Huelke described the dangers to drivers and passengers of objects that protruded into the "interior environments" of vehicles.<sup>1,2</sup> Later that year, Gikas expressed addi-



tional concern about the dangers to pedestrians of hood-mounted objects (personal communication, November 1968). He cited the 1962 work of Wakeland,<sup>3</sup> who had proposed modifying or eliminating all externally protruding, fixed objects from the "leading edges" of motor vehicles.

Based on Wakeland's proposal and others, the National Highway Traffic Safety Administration (NHTSA) in 1969 began discussions with vehicle manufacturers about formulating a Federal Motor Vehicle Safety Standard (FMVSS) for "Exterior Protrusions." The proposed new standard was to be modeled on FMVSS-208, which had earlier defined "Occupant Crash Protection" (and thereby required a costly redesign of vehicle interiors). Under the pressures of that precedent, the 1969 discussions led to a nonregulatory compromise that eliminated fixed, immobile hood ornaments. Only spring-mounted ornaments of "reasonably safe design" could be installed.<sup>4</sup>

Because of this standard, late-model Cadillacs such as the one involved here, had a spring-mounted hood ornament, designed to diminish the risk of pedestrian injury. I am not aware of other examples of hood ornament fragmentation and subsequent trauma,<sup>5</sup> but it seems reasonable to assume that the design engineers who took part in that regulatory compromise in 1969 did not foresee the crash sequence outlined in this report. Perhaps the safest ornament is no ornament at all. □

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## Aphorisms of the Month

Daniel J. Sexton, MD, Section Editor

### "18th- and 19th-Century Wisdom"

An injured friend is the bitterest of foes.

—Thomas Jefferson

One man lies in his work and gets a bad reputation; another in his manners and enjoys a good one.

—Henry David Thoreau

There's small revenge in words, but words may be greatly revenged.

—Ben Franklin

You take the lies out of him, and he'll shrink to the size of your hat; you take the malice out of him, and he'll disappear.

—Mark Twain

I think I can say with pride, that we have some legislators that bring higher prices than any in the world.

—Mark Twain

Hain't we got all the fools in town on our side? And ain't that a big enough majority in any town?

—Mark Twain (*The Adventures of Huckleberry Finn*)

Geniuses are commonly believed to excell other men in their power of sustained attention.... But it is their genius making them attentive, not their attention making geniuses of them.

—William James

We are afraid of truth,  
afraid of torture,  
afraid of death, and  
afraid of each other

—Ralph Waldo Emerson

There is no good in arguing with the inevitable. The only argument available with an east wind is to put on your overcoat.

—James Russell Lowell

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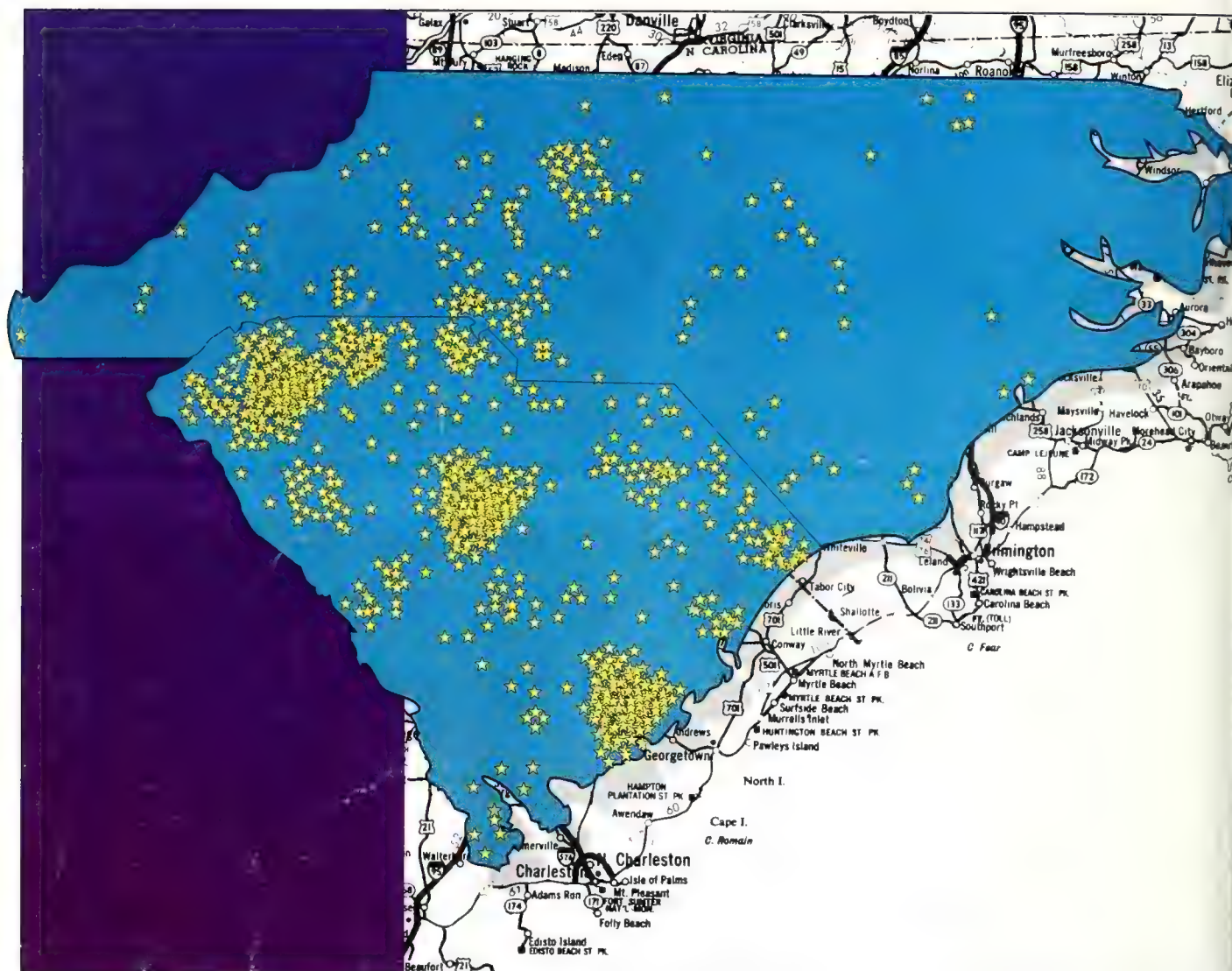
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